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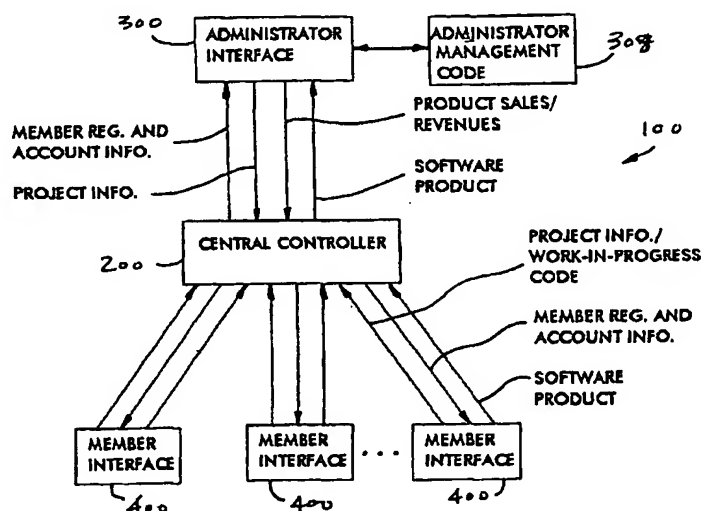
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(54) Title: **SYSTEM AND METHOD FOR COLLABORATIVE PRODUCT DEVELOPMENT**



(57) Abstract: A computer information network system and method for facilitating the collaborative development of a product in an electronic format. A server connects a central controller to a network and supports a site on the network. The central controller includes a data storage device having at least one database storing the product being developed in an electronic format. The database is accessible at the site on the network by one or more selected users. A local computer executes an administrator interface for communicating with the central controller to manage administrative functions of the system. One or more remote computers situated remotely from the local computer and connected to the network each execute a developer interface for communicating with the central controller via the network. The developer interface permits the users to access the site supported by the central controller and establishes data transfer links between the remote computers and the central controller for the users to update the product being developed.

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## SYSTEM AND METHOD FOR COLLABORATIVE PRODUCT DEVELOPMENT

### BACKGROUND OF THE INVENTION

The invention relates to an electronic system and method that allows multiple participants to collaborate in the development of products, including software products, and, in particular, such an electronic system and method using a computer information network, such as the Internet, which allows participants to collaborate in the development of software products while situated at sites remote from each other and remote from an administrator site on which the software products are centrally maintained and to receive compensation related to each participant's collaborative effort.

With the evolution of wide area computer information networks, such as the Internet, it has become possible for persons to electronically access, download, and/or transmit information from or to a remotely located site. With the development of the Internet, businesses have increasingly turned to electronic commerce as an effective means for communicating with potential customers and conducting business. Typical business applications of the Internet include on-line auctions, catalog sales, want-ad sites and other forms of electronic commerce. Another application of on-line commerce provides an electronic forum in the form of a website intended to bring freelance software developers together with companies, individuals or other entities in need of software development.

The architecture of present software development websites generally allows the company or other entity in need of software development to submit a proposed project to the website via a conventional Internet interface. Once approved by the administrator of the website, the project proposal is posted on the website where software developers who are registered with the site may interface with the site via an Internet interface and view the proposals. The software developers respond to the proposal by posting on the website their own bid/proposal for completing the project, including an estimate of the time and cost for developing the software. The submitting company accesses the website and

reviews the bids and selects the developer who will develop the software. The developer then works, independently of the website, to develop the software, and is paid by the submitting company upon completion of previously agreed upon milestones.

One disadvantage of such a system is that it does not provide the ability for  
5 collaboration among remotely situated software developers to effectively collaborate in the development of a product. For example, the conventional system lacks a centrally located source code database where code can be centrally stored and accessed by the software developers. Thus, where several software developers desire to be involved in the joint  
10 development of a software product, the developers must either be co-located, must continually electronically transfer the source code back and forth to each other, or must use publicly available collaboration software independent of the systems on the Internet site. The larger the number of developers working on a single software product, the more logistically difficult this becomes.

One type of collaborative development website meets some of these needs, but is  
15 used to facilitate the development of "open source" software. Open source software is software whose source code is made available to the public at no cost via the Internet or other media. However, these websites do not provide administrative control and compensation for the developers. The administrator of the website publishes the software that is developed on the website or other media and makes it available to the public for  
20 free. In the conventional open source system described above, the software developers cannot share financially in the success of a well-developed product since there is no mechanism to measure the contribution of any individual developer and unclear ownership issues with respect to the underlying code.

There is a need, therefore, for a system and method which allows remotely situated  
25 software developers and others, such as beta testers, documenters, marketers, and the like, to more efficiently collaborate on the development of software products and to share financially in the success of the developed products.

## SUMMARY OF THE INVENTION



The invention meets the above needs and overcomes the deficiencies of the prior art by providing an improved system and method of collaborative development of products. Among the several objects and features of this invention is the provision of such system and method for collaborative software development that permit remotely situated software developers to collaborate on the development of software products via a computer information network; the provision of such system and method that facilitate the successful development of software products; the provision of such system and method that permit the software products being collaboratively developed to remain in a central storage location having controlled access; the provision of such system and method that permit an administrator to manage the operation of the system via a central administrative website; the provision of such system and method that permit project managers to maintain control of and manage the various product development projects independent of the administrator; the provision of such system that provides software developers with incentives to collaborate in the development of software products at the central administrative website; the provision of such system and method that permit software developers involved in collaborative development of software products to be financially rewarded from the successful marketing and implementation of the software products; the provision of such system and method that permit the software developers to be compensated in accordance with their respective levels of effort and success in developing the software products; and the provision of such system and method that are economically feasible and commercially practical.

Briefly described, a computer information network system embodying aspects of the invention facilitates the development of a product in an electronic format. The system includes a central controller that has a server for connecting it to a network and for supporting a site on the network. The central controller also includes a data storage device having at least one database storing the product being developed in an electronic format. According to the invention, the database is accessible at the site on the network by one or more selected users. The system also includes a local computer and one or more remote computers. The local computer executes an administrator interface for communicating

with the central controller to manage administrative functions of the system. The remote computers are situated remotely from the local computer and connected to the network. The remote computers each execute a developer interface for communicating with the central controller via the network to permit the users to access the site supported by the central controller. The developer interface further establishes data transfer links between the remote computers and the central controller for the users to update the product being developed. In this manner, the system facilitates collaboration between the users to develop the product.

Another embodiment of the invention is directed to a method of developing a product in an electronic format. The method begins by providing a site on a computer network accessible by a plurality of registered users. The method also includes defining a project having a plurality of tasks to be completed for developing the product, assembling a team of one or more of the users, assigning a predetermined share value to each of the tasks, and assigning one or more of the tasks to each user on the team. According to the method of the invention, the product may be stored in an electronic format in a database that is accessible at the site on the computer network. In such a case, the users on the team store the respective portions of the product associated with their assigned tasks in the database. The method further includes the steps of awarding shares to the users upon completion of the project based on the assigned share values of the completed tasks and then compensating the users for revenues derived from sales of the product as a function of the shares awarded the users.

In another form, a computer information network system embodying aspects of the invention is for developing a product in an electronic format. The system has a central controller including a server and a data storage device. The server connects the central controller to a computer network. The data storage device has at least one database, accessible on the network by one or more selected users, storing the product in an electronic format. The product is defined by a project having a predetermined total share value and a plurality of tasks to be completed by the users, each task being assigned a predetermined share value. The system also includes one or more remote computers

situated remotely from the local computer and connected to the network. The remote computers each execute a developer interface for communicating with the central controller via the network to permit the users to access the product database.

Yet another embodiment of the invention is directed to a computer data signal embodied in a carrier wave for facilitating the compensation of one or more participants in a collaborative development effort. The computer data signal organizes a plurality of tasks leading to the completion of the collaborative development effort, allocates a limited number of shares to each of the tasks, assigns the one or more participants to work on the tasks, and distributes to each respective participant of the one or more participants upon completion of the collaborative development effort the shares allocated to each of the tasks assigned to the respective participant.

In another form, a method of facilitating the compensation of one or more participants in a collaborative development effort includes the steps of organizing a plurality of tasks leading to the completion of the collaborative development effort and allocating a limited number of shares to each of the tasks. The method further includes assigning the one or more participants to work on the tasks and distributing to each respective participant of the one or more participants upon completion of the collaborative development effort the shares allocated to each of the tasks assigned to the respective participant.

Alternatively, the invention may comprise various other methods and systems.

Other objects and features will be in part apparent and in part pointed out hereinafter.

## BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a block diagram of a system for collaborative software development according to a preferred embodiment of the invention.

FIG. 2 is a block diagram of a central controller of the system of FIG. 1.

FIG. 3A is a block diagram of an administrator interface of the system of FIG. 1.

FIG. 3B is a block diagram of a member interface of the system of FIG. 1.

FIG. 4 is an exemplary flow diagram illustrating the operation of the system of FIG. 1 according to a preferred embodiment of the invention.

FIGS. 5 and 6 are exemplary flow diagrams illustrating decision steps  
5 implemented by the system of FIG. 1 for executing a project initiation stage of the flow diagram of FIG. 4.

FIGS. 7 and 8 are exemplary flow diagrams illustrating decision steps  
implemented by the system of FIG. 1 for executing a project production stage of the flow diagram of FIG. 4.

10 FIG. 9 is an exemplary flow diagram illustrating decision steps implemented by the system of FIG. 1 for executing a project completion stage of the flow diagram of FIG. 4.

FIG. 10 is an exemplary flow diagram illustrating decision steps implemented by the system of FIG. 1 for executing a member compensation stage of the flow diagram of FIG. 4.

15 FIG. 11 is an exemplary screen display of a member registration interface implemented by the system of FIG. 1.

FIG. 12 is an exemplary screen display of a member home page implemented by the system of FIG. 1.

20 FIG. 13 is an exemplary screen display of a résumé interface implemented by the system of FIG. 1.

FIG. 14 is an exemplary screen display of a discussion area interface implemented by the system of FIG. 1.

FIG. 15 is an exemplary screen display of a project search interface implemented by the system of FIG. 1.

25 FIG. 16 is an exemplary screen display of a project job postings interface implemented by the system of FIG. 1.

FIG. 17 is an exemplary screen display of a project initiation interface implemented by the system of FIG. 1.

FIG. 18 is an exemplary screen display of a résumé search interface implemented by the system of FIG. 1.

FIG. 19 is an exemplary screen display of a project management interface implemented by the system of FIG. 1.

5        FIG. 20 is an exemplary screen display of a peer review interface implemented by the system of FIG. 1.

Corresponding reference characters indicate corresponding parts throughout the drawings.

#### DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS

10        This invention provides a system and method for assisting in the creation of software, writing, music composition, visual art, inventions and other products by various participants who are not necessarily associated by common employer (or other grouping) while providing some measure of remuneration for each participant based on that participant's contribution to the project. The invention may utilize the Internet or other  
15        computer network to facilitate interconnection of participants around the globe. These participants may use the invention to find and join creative projects that are compatible with the participants' skills and aspirations. Teams are formed on a project-specific (sometimes even task-specific) basis. Upon completion of the project, the participants disband and may join new teams for other projects. Team members are compensated with  
20        shares in each individual project they contribute to, which should provide the participants with some remuneration if the project sells commercially. All phases of the creative process, from initial idea submission to final editing or de-bugging, may be facilitated and tracked by the system. The combined features of the system make possible an advanced "serial" approach to the creation of products and materials that can be produced through  
25        collaborative efforts.

With reference to the drawings, and in particular FIGS. 1 and 2, a collaborative software development system according to one preferred embodiment of the present

invention is indicated generally at 100. The system 100 involves using a computer information network to collaborate the efforts of one or more users or participants (*e.g.*, software developers, beta testers, documenters, marketers, and the like) situated in remote locations toward developing a software product to be distributed by an administrator of the system. The computer network is any computer network that allows multiple computer systems to communicate with each other such as a Local Area Network (LAN), Wide Area Network (WAN), Intranet or the Internet using standard communications protocols. It should also be noted that the computer network could comprise the public telephone network with the server acting as a dial-up bulletin board and the clients dialing in directly to the server via the telco network.

In one preferred embodiment, the computer information network is a wide area or global network such as the network commonly referred to as the "Internet." In general, connections to the wide area network known as the Internet provide computer users with access to a number of resources, including documents on the World Wide Web, a hypertext-based information service that allows web browser clients to access information from web servers. With an Internet connection via a web server, and using specific web browser software, a user can browse the World Wide Web. Examples of such software include Netscape Navigator® and Microsoft Internet Explorer™. Those skilled in the art recognize that a suite of protocols, referred to as TCP/IP provides a standardized format for Internet data communication between, for example, a server and client. The TCP/IP protocol suite is named for its two main protocols, *i.e.*, the transmission control protocol (TCP) and the Internet protocol (IP). As is known in the art, web documents, or pages, are usually made up of multiple objects such as blocks of text, images, programs, audio clips and/or video clips. A hypertext transfer protocol (HTTP) provides for the transport of bitstreams representing these objects from a remote server to a local client and is the primary mode of transfer and presentation in this connection environment.

As used herein, the term "administrator" broadly refers to an individual, company or other entity responsible for providing and maintaining an electronic forum, such as a site on the world wide web, bulletin board, or other platform, accessible by software

developers and others collaborating efforts to develop software products. The software products may be developed, for example, for distribution and/or sale by the administrator, or pursuant to a development agreement between the administrator and a company or individual seeking specified software products. The term "member" broadly refers to an individual, company or other entity that registers with the administrator, in a manner proscribed by the administrator, as a software developer interested in developing and/or testing software products developed in accordance with the present system. It is to be understood that the members may be situated remotely from each other and from the administrator while still being located in, for example, a single building. In network terms, two nodes are considered remote from each other if they have separate network addresses.

A system 100 generally comprises a central controller 200, an administrator interface 300 capable of an input/output connection with the central controller 200, and one or more developer or member interfaces 400 also being capable of input/output connection with central controller 200. Any number of members may interface with central controller 200 via the member interfaces 400 to access information or participate in software development in accordance with the present system 100. Moreover, the members may interface with each other via central controller 200 as part of an online development community.

With reference to FIG. 3A, the administrator interface 300 through which the administrator communicates with central controller 200 comprises a local administrator computer 302 executing network accessing software, such as a conventional web browser, and a modem (not shown) or other interfacing hardware capable of establishing an input/output data transfer link to a network interface 202 (see FIG. 2). As shown in FIG. 3B, each member interface 400 is constructed in a similar manner with a remote user computer 304 connected to central controller 200 via a network. In this example, an Internet service Provider (ISP) 306 provides the remote computer 304 with a connection to a global network. Network connections in this manner are well known to those skilled in the art and will not be further described herein except to the extent set forth below.

Referring further to FIG. 2, central controller 200 includes the network interface 202, which is capable of establishing an input/output connection with the administrator interface 300 and member interfaces 400. A conventional server 204 supports the administrator's website code 208, such as hypertext markup language ("HTML").

5 Preferably, the website code 208 causes the administrator's website display to be downloaded to the accessing interface upon establishment of a connection between the administrator's or member's interface 300, 400 and network interface 202 of central controller 200. The server 204 also supports system operating source code 210, which will discussed in detail later herein, that allows members of system 100 to conduct various  
10 functions in accordance with the invention without establishing a direct interface with the administrator. It is contemplated that server 204 may be provided and operated by a contracted service provider, such as an ISP. However, it is understood that the administrator may itself provide and operate server 204 and remain within the scope of this invention.

15 The server 204 also supports one or more data storage devices 212 containing the various databases that are part of system 100. Among other things, the databases house member information (*e.g.*, tasks, shares), accounting information (*e.g.*, payments, amount of sales) and electronic commerce information (*e.g.*, products sold, purchaser information). In addition, the databases preferably include the completed projects in the form of a file  
20 storage system. Those skilled in the art recognize that one or more databases may be established for storing and managing the various data used in accordance with the present invention.

In the present illustration, system 100 can be further described in a client-server context in which the clients (*i.e.*, user computers 304) each preferably run on a general-  
25 purpose computer system such as an IBM compatible, Apple, or other equivalent personal computer that allows a developer to communicate with server 204 via an electrical connection, such as the plain old telephone system via direct-dial system, a global computer network, local area network (LAN) or wide area network (WAN). The general-purpose computer system further includes a network interface that allows for



communications with the computer network and may include, for instance, any Internet capable software program such as Netscape Navigator, Microsoft Internet Explorer, Mosaic, or their equivalents. Server 204 is preferably a general-purpose computer system such as an IBM compatible, Apple, Unix type workstation, or their equivalents that can  
5 facilitate inquiries from multiple simultaneous inquiries. Server 204 must also have a network interface that allows for communications with the computer network and may include Internet server software. Of course, the server and clients 204, 304, respectively, need not be running on the same type of general-purpose computer for the present system to be operational.

10 Although described in the context of computer source code, it is to be understood that a software product as contemplated by the present invention includes any number of products capable of being produced in an electronic form. For example, such products may include books, music, screenplays, research papers, movies and the like in addition to source code.

15 The collaborative software development system and method of the present invention will now be further described with reference to the flow charts of FIGS. 4-10.

In a preferred embodiment of the invention, the system 100 of FIG. 1 operates according to a flow diagram shown in FIG. 4. As shown, system 100 implements an environment for facilitating collaborative product development by a plurality of remotely  
20 located users. System 100 preferably executes a series of routines, described in detail below, as a function of input from the administrator and members for carrying out the invention. Beginning with the generation of a product idea at step 402, the present invention calls for a project initiation stage 404, followed by project production and project completion stages 406, 408. A project, consisting of a number of tasks usually  
25 performed by different member developers, defines the product under development. According to a preferred embodiment of the invention, the project is allocated a total number of shares, or a share value. Each user can earn a number of shares agreed upon between the user and the project manager, representing a percentage of the project's total share value, for the completion of an assigned task. After completion of the project,

product packaging and sales take place at stages 410, 412, respectively. Finally, the administrator compensates the member developers for their contributions to the project at stage 414 based on, for example, the number of shares in the project owned by each user and the amount of sales. In support of the project stages, the present invention executes member account initiation and management stages 416, 418 along with a member services stage 420 for supporting the members. The administrator computer 302 preferably executes routines, shown as administrator management code 308 in FIG. 1, for implementing the various steps of FIG. 4.

The idea generation stage 402 allows any member to define a discrete project based on an idea and become its "project manager." As shown in FIG. 17, the initiating member may select another member to become the project manager. In general the idea generation stage may involve the use of various aspects of the overall site. For instance, a member may search through other existing projects (see FIGS. 1, 15, and 16) looking for ideas. In another example, a member may generate an idea based upon comments found in discussion strands, programming language forums or news items, all of which may be made available via server 204 or through other equipment. The content may be generated by third parties, members to the site at large or members of particular projects.

The product initiation stage 404 helps members with ideas to turn those ideas into real, profitable products (*e.g.*, new software, upgrades, manuals). To complete stage 404, the invention sets forth certain major tasks to be performed. In general, tasks are divided into five main categories: design, development, testing, documentation, and administration. Each of the five categories of "parent" tasks may have any number of subcategories, or "child" tasks.

The data storage device 212 of central controller 200 preferably houses a "public résumé" database, including members' skill levels and ratings. Among other things, the résumé database provides a searchable set of résumés for members to search for qualified project managers. Other tasks in product initiation stage 404 involve providing an "idea incubator" discussion area, helping members to find project managers who can implement their ideas. An example of an idea incubator is creating a newsgroup-type discussion area

on a centralized site, which may be accessible via the Internet, where members can talk about ideas for projects. In addition, the idea incubator can be used as a computer bulletin board for members to publicly seek out project managers.

The stage 414, compensating members for generating ideas and organizing  
5 projects, depends on the status of the originating member as either a project manager/creator or simply the "project creator." If the member is the project creator, he or she receives a share of project from the project manager's share (e.g., 20% of the project manager's fixed share). The allocation of shares is described in greater detail with respect to FIG. 7. Although the project creator has the ability to select a project manager, the  
10 present invention contemplates the project creator only having limited access to the project so the manager can maintain control.

Referring now to FIG. 5, project initiation stage 404 provides support to the project manager to help ensure the success of the project. Beginning at step 502, this stage calls for first determining the type of project at hand and the number of member developers that  
15 will be involved on the "team." In a preferred embodiment of the invention, data storage device 212 includes a database of project templates appropriate to various types and sizes of projects. The manager can select one of the templates at step 504 based on the parameters determined at step 502. The templates may define pre-allocated amounts of shares of the completed project for determining the amount of compensation for the team  
20 members. For example, the manager can use a template to assign shares and tasks, such as design, coding, testing, and documentation. In addition, at step 506, the templates preferably define high-level project tasks, with pre-allocated share amounts, to be completed by the team members. The manager typically selects an appropriate project template when the project is officially started. However, if a template is not available for  
25 the particular type of project, as determined at step 508, system 100 proceeds to step 510 for providing a default template in which the manager allocates shares to various tasks.

In a preferred embodiment of the invention, project initiation stage 404 also allows members to request that a new template be created or that an existing template be modified at step 512. This may be accomplished by sending an e-mail to a special company

address. This stage also includes providing a “classified” section at step 514 where managers can solicit team members. As an example, the present invention creates job posting screens allowing managers to specify the desired skills and type of work needed along with a description of the task at hand. Managers preferably specify a experience rating level that is appropriate for each position. At step 516, system 100 implements a “résumé search” feature where managers can search through information provided by members who want work. In this instance, the data storage device 212 of central controller 200 houses a database of member résumés. It is contemplated that employment recruiters will be authorized to search the skills and résumé database for a fee.

10           Members are given a way of searching for projects that have openings for developers with particular skills. At project creation, the manager can specify the types of skills needed to implement the project. The managers can also specify whether or not a project is “accepting applications.” Preferably, central controller 200 also includes a searchable database storing these project openings (see FIGS. 15 and 16). Consequently, a member can search for a new project using a variety of criteria including, but not limited to, project name, programming language, skill level required, project manager name, type of project (*i.e.*, game, utility, device driver, etc.), project status (*i.e.*, early development, beta testing, etc.).

20           According to the present invention, project initiation stage 404 further provides means for maximizing the number of members who are involved in projects and for increasing website traffic, member loyalty, and member satisfaction. One task in project initiation stage 404 for accomplishing this goal is to give members an incentive to become project managers. For example, project managers receive a fixed percentage of project shares (*e.g.*, 10%), as a minimum compensation. When the project begins, system 100 automatically and permanently assigns the fixed percentage of shares to the project manager.

Referring now to FIG. 6, project initiation stage 404 further includes a routine for encouraging and supporting an open-source development community. At step 602, the present invention first determines whether the new project involves the creation of open-

source software. If so, the manager may choose to create an open-source project, having executable and source code that is freely available over the Internet. In the event that the manager specifies a project as open-source, all members can view and download the source code and executables, as indicated at step 604. In contrast, the non-team members  
5 only have read-only access to the files at step 606. If the code is not open, only team members have access to the code and executables at step 608.

FIG. 7 provides additional detail relating to the product production stage 406. At stage 406, the present invention contemplates that experienced members and/or employees of the administrator provide project management assistance. This may be accomplished  
10 by posting frequently asked questions, and their answers, on an Internet website and/or answered questions posed by e-mail. A private newsgroup for each team to communicate about the project and make announcements also provides project management assistance.

The product production stage 406 also includes a routine for allocating shares between team members to ensure that the users are compensated fairly for completing their  
15 assigned tasks. As shown in the exemplary routine of FIG. 7, beginning at step 702, system 100 tracks share allocation. At step 704, the templates described above define shares for each project portion in one embodiment of the invention. If the project manager and team member agree on a new share assignment, as decided at step 706, central controller 200 stores the share data in another database at step 708. Among other things,  
20 the share data includes information about the transaction including the date/time that the member accepted the allocation. Proceeding to step 710, the invention accounts for changes in share allocations. If the project manager and team member agree on the changed share assignment, as decided at step 712, central controller 200 stores the share data in the share information database at step 714. Thus, the project production stage  
25 permits tracking changes to the allocation of shares for a project and keeping historical information relating to the allocation.

The parent task categories described above include: design (*e.g.*, documenting requirements and program specifications, defining screens and reports); development (*e.g.*, construction of the code to follow the design); testing (*e.g.*, testing of individual units of

the product and/or the integration of product components); documentation (*e.g.*, technical writing, user manual documentation, download instructions); and administration (*e.g.*, correspondence, assigning tasks, task follow-up). It is understood that the parent tasks described above are exemplary. The templates stored in data storage device 212 may  
5 define and allocate shares for one or more of these parent tasks, a combination of these parent tasks, or other parent tasks depending on the nature of the project. As an example of task assignments, the project manager can approve any number of child tasks under a parent task category. The number of shares, however, may not exceed the total number of shares allocated in the next higher task level (*e.g.*, the “user documentation” task worth  
10 500 shares under the “documentation” parent task can be further divided into “download documentation” worth 250 shares and “user manual” worth 250 shares.).

It is contemplated that beta testing, in addition to being one or more tasks of a project, could also be considered a project in and to itself. According to a preferred embodiment of the invention, system 100 provides a virtual beta testing facility, rewarding  
15 consumers for testing software by providing them the opportunity to share in some sum of shares, prizes or other remuneration. In a collaborative software development community, such as the one established by the present invention, any member can help test a product and, as a result, share in the profits from the product. During beta testing, members, including non-programmers, can contribute to projects by finding and reporting problems,  
20 or bugs, or enhancements relative to a particular software product and become eligible to receive shares in the future revenues of such product.

As described herein, beta testing according to the invention differs from traditional testing methods. Software companies have customarily distributed free, pre-release versions of software known as beta versions as part of their testing process to detect and  
25 remedy problems with the software. The bugs that are reported during the beta release are used to make program improvements before the final version is marketed.

Notwithstanding the efforts of conventional beta testers, software products are typically marketed with bugs. Moreover, software companies often experience difficulty in finding enough people willing to participate and provide quality feedback on their beta product

versions. Generally, most traditional beta testers are merely compensated with free versions or discounts on the software they test, which is not likely to adequately motivate most beta testers to report bugs detected during testing.

The following describes an exemplary beta testing process:

- 5           1. A project manager submits a project for beta testing by changing the project status to "submitted."
2. The administrator reviews the project to ensure it is generally safe and ready for beta testing, and may create a suitable installation package for the project.
3. The community members locate projects ready to download for beta testing by  
10 clicking the "Beta Testing" icon on a beta test interface.
4. A community member downloads and tests the project, and submits any bugs or enhancement ideas.
5. The community rates each member's change request(s).
6. The project manager determines what action to take on the change request(s)  
15 and assigns a point value to each bug or enhancement reported, which may be based on the first posting of each individual bug and/or enhancement..
7. When the project is complete, the allocated shares for beta testing are then divided among all community members whose change requests are awarded points by the project manager.
- 20           8. All members who received shares earn a portion of the product's revenues, just as would any participant in the project.

In one embodiment, only the first person to report a bug or change can be awarded any reward. In this way, the testers are encouraged to look and sift through the project for bugs or changes in an expeditious manner.

- 25           In one embodiment, the project manager assigns a point value ranging from 1 to 20 (20 being the most valuable) to each request according to its value to the project. These points are important, because they represent the portion of the beta testing shares that the reporting member will receive. Since the total number of points is divided into the total number of shares allocated for beta testing, it is not advantageous for a project manager to

assign trivial or low point values to change requests. The points are only important in their relation to each other. Preferably, team members are not eligible to receive beta testing points when they submit requests for their own project because they earn shares from completing tasks and to prevent abuse.

5           As an example, the project manager can assign 1 or 2 points for spelling errors, 2 to 7 points for aesthetic errors, 6 to 13 points for usability errors (application is not intuitive), 10 to 17 points for functional problems, and 15 to 20 points for critical/system crash/data loss. In addition, any member of the community (regardless of whether he or she is on the project team or has requested any changes) can rate each change request on a  
10       scale of 1 to 5 (1 being the least important; 5 being the most important). This rating is averaged along with the other ratings to provide the project team with an idea of the relative importance of the change request to the user community.

          Further to this example, if the change request requires an additional task to be added, the project manager can enter a task reference number (*e.g.*, 3.4.1) from the project  
15       task list in the field indicated. This will create a link to the task detail screen, allowing team members to view change requests related to tasks they have been assigned. A request may be removed from its task link by clicking "remove" (this will not delete the request altogether). A number at the top of the project change request list can be used to represent the actual number of the project's total shares that the project manager has  
20       reserved for beta testers, preferably as a percent of total allocated shares.

          In a preferred embodiment illustrated by FIG. 8, project production stage 406 also tracks critical task information beginning at step 802. At step 804, system 100 queries whether critical task information, such as the project's status, the names of a team member, or a description of one of the defined tasks, has changed. At step 806, an audit  
25       trail database of central controller 200 preferably saves both the old and new values representing the critical information. Step 808 refers to the share tracking routine of FIG. 7.

          Referring now to step 810, the invention calls for tracking additions, changes, and deletions to a file. At step 812, system 100 executes a source control application to track



changes made by each member. In addition, system 100 tracks downloads of closed-source project executables by non-team members at step 814. Proceeding to step 816, the present invention determines whether a non-team member downloaded any files for an incomplete closed-source project. If so, central controller 200 makes a record of the  
5 downloads at step 818.

FIG. 9 illustrates routines performed in the project completion stage 408 of the invention. In certain cases, shareware for instance, the project completion stage 408 may not be required or even utilized. However, where a product will be sold, project completion stage 408 ensures that completed projects fit the administrator's company  
10 standards of quality. Project managers are charged with meeting certain quality standards before a project can be deemed completed. In one embodiment, a number of site members (*e.g.*, 10 or more) must download the resultant product for testing before the project is considered complete. For software products especially, the administrator of system 100 sets forth preferred standards. For example, all software applications must include user  
15 documentation in HTML or PDF format. Another example involves standardizing the software products by building products using most or all files and information contained in a source control database of central controller 200. Specific build instructions may be checked into the source control under the file name, BUILD.TXT, for example.

In one embodiment, team members provide feedback regarding the performance of  
20 their project manager, and vice-versa. The feedback affects the allocation of shares and, thus, affects the compensation received at completion of the project. As described with respect to project completion stage 408, the feedback can increase the rating given the manager or member. Participating in projects also increases the skill, or experience, rating of a project manager and participating in projects that result in widely-used products  
25 increases his or her quality rating.

One feature of the collaborative strategy of the present invention is to encourage project managers to select new, inexperienced members for their projects. In so doing, the overall pool of qualified members increases. In this instance, inviting participation of new members increases a project manager's experience rating.

Providing members with a share of project revenues based on the tasks they performed gives members an incentive to get involved in projects. In a manner similar to the feedback described above, the project manager preferably evaluates the performance of the members. The feedback can increase a member's rating. As with managers,  
5 participating in projects increases the experience rating of a member and participating in projects that have high customer satisfaction increases his or her quality rating.

Referring to FIG. 9, step 902 begins a preferred rating process for evaluating the performance of each team member. In general, the administrator does not release compensation for the sale of a product to the project manager until he or she has given  
10 feedback on each team member. The initial inquiry at step 904 is whether the project has been completed. Members who are involved in completed projects receive points that increase their experience rating. If the project is complete, the manager assigns points to the team members at step 906. Likewise, team members provide feedback on the project manager (and possibly other team members) at the end of the project. Although described  
15 in the context of a completed project, it is contemplated that ratings may be given before project completion without deviating from the scope of the invention.

As before, the administrator does not release compensation for a product's sales to a team member until feedback has been provided for the project manager. The feedback system involves the use of a numerical value that determines an overall ranking in one  
20 embodiment. For example, the member supplying feedback may give a rating between - 2 and 2, where - 2 is the worst possible rank and 2 is the best. In another example, project members may be rated in various categories on a scale of 1 to 10 (see FIG. 20). As shown in FIG. 20, these categories may include quality of work, cooperation, knowledge, helpfulness, dependability, availability and more. In any approach, an overall feedback  
25 score is then determined as a function of individual feedback ratings.

At step 908, team members receive a experience rating for participating in the project and the manager increases each team member's experience rating by a percentage of 10 that is equal to the member's percentage of shares in the project. Project managers receive a experience rating bonus for managing the project at step 910. In one

embodiment, project managers receive a experience rating bonus based on the number of team members that contributed significantly to the completion of the project. At step 912, this number is determined. Proceeding to step 914, system 100 operating in accordance with the present invention increases the project manager's experience rating by 2 points  
5 for each member who is among the top 80% of shareholders on the project.

Referring now to step 916, project managers also receive a experience rating bonus based on the number of members of the team who do not have prior project experience. For example, step 918 assigns a experience rating bonus to the project manager on this basis. At step 920, the administrator of system 100 increases the project manager's  
10 experience rating by 2 points for each member who has never received shares from a project.

In another preferred embodiment of the invention, member ratings are made up of three main performance-based components: peer, experience, and quality ratings. Upon completion of tasks, members rate their teammates and project manager and the project  
15 manager rates each member of the team based on factors such as quality of work, cooperation, knowledge, helpfulness, communication, dependability, availability, initiative, attitude, and turnaround time. In addition to the peer rating, each member receives a rating based on his or her experience level and a rating based on the quality (*i.e.*, success) of the project. The following provides an exemplary experience rating for  
20 members:  $(\text{member's shares}/\text{total shares for project}) \times (\# \text{ of team members})$ ; and for Project Managers:  $(0.2 \times \# \text{ of team members}) + (0.1 \times \# \text{ of newbies on team}) + (\text{team member experience points})$ . A member's quality rating measures the success of projects in which the member has participated. The member receives this rating based on, for example, composite customer ratings of the product.

25 Each member's overall rating preferably comprises a weighted combination of the three individual ratings. For one example, the peer rating could be 75%, the experience rating 20%, and the quality rating 5% of the member's overall rating. Of course, other weights could be used without deviating from the scope of the invention.

In a preferred embodiment of the invention, the product packaging stage 410 of system operation involves providing standard user interfaces and documentation for the products. This stage also creates a standard installation/setup program if possible.

The goal of the product sales stage 412 is to effectively and simply sell the products resulting from the collaborative development effort of the present invention. As an example of the sales process, customers purchase products via authorized credit card transactions and then download the products via the Internet. Member accounts are preferably credited for sales upon collection for sales on account or other sales not collected via credit card transaction. If the developed products are sold to or through a third party, the team members receive their percentage of what the administrator receives from the third party. It is also contemplated that products will be packaged for physical, rather than electronic, sale. In these instances, the team members receive their percentage of the administrator's net income from sales of physical products. For informational purposes, the gross sales for each item sold are made available to all members of the team responsible for the product. Moreover, the compensation is preferably cross-tabulated in text and graphics showing correlation to gross sales and other data.

FIG. 10 illustrates routines performed in the member compensation stage 414 of the invention. The goal of this stage is to compensate members responsible for the creation of a product with a percentage of sales of that product. Team members responsible for a product receive a percentage of the company's sales of the product. In one embodiment, the development team receives a large portion (*e.g.*, 75%) of the administrator company's revenue for each product sold and each team member receives a percentage of the team's share. Each team member's percentage of the team's revenue is, for example, the same as that member's percentage of shares earned of the total shares for the project. In general, team members are paid according to the following formula:  $(\text{monthly sales revenue}) \times (\text{share } \%) \times (\text{team revenue } \%)$ . Members preferably accumulate an account balance based on the monthly sales of the products on which they have earned shares. In one distribution option, the administrator provides branding for a shareware product and distributes it as a download from the administrator site or other distribution

centers/websites. Under this option, the team receives 90%, for example, of the revenues.

In another distribution option, the administrator not only provides branding and distribution for a certified product but also tests the product, sets up its installation, reviews the documentation, and provides limited post-release customer support. Under this option, the team receives 75%, for example, of the revenues.

The following are examples illustrating member compensation:

1) A project manager who earns 2,000 shares of a 10,000-share certified product receives 20% of the team's total 75% compensation. In a given month, if 100 copies of a \$30 software product are sold, the member receives: (monthly sales revenue)  $\times$  (share %)  $\times$  (team revenue %) =  $\$3,000 \times 20\% \times 75\% = \$450$ .

2) A team member who does one task that is worth 300 shares of a 10,000-share shareware product receives 3% of the team's total 90% share of revenues. If the product sells 250 copies at \$15 each in one month, the member receives: (monthly sales revenue)  $\times$  (share %)  $\times$  (team revenue %) =  $\$3,750 \times 3\% \times 90\% = \$101.25$ .

3) The project manager in example 1) may not work on any projects for a few months but still reaps the rewards of his or her work. If the project manager does not request a payout for three months, in which the \$30 product sells 100, 40, and 70 copies, respectively, in each month of the three-month period. The manager receives: (accumulated monthly sales revenue)  $\times$  (share %)  $\times$  (team revenue %) =  $(\$3,000 + \$1,200 + \$2,100) \times 20\% \times 75\% = \$945.00$ .

4) The manager in example 3) also worked as a team member in the project of example 2), earning 300 shares. The second product sold 250, 130, and 60 copies, respectively, in the previous three months. The manager (as a team member) receives: (accumulated monthly sales revenue)  $\times$  (share %)  $\times$  (team revenue %) =  $(\$3,750 + \$1,950 + \$900) \times 3\% \times 90\% = \$178.20$ .

In order to increase flexibility and lower costs of transmitting funds to members, the administrator preferably accumulates payouts. The members can review their accounts at any time and request payouts, thus deciding generally when they want to be paid. In addition, the system of the present invention provides a complete history of the various

member accounts, including drill-down features that allow members to review all data relating to projects that they have worked on and their life-to-date payment histories. In a preferred embodiment, the administrator performs payouts on a regular (*e.g.*, monthly) schedule. If distributing payments throughout the month is desirable, the timing of the monthly payments can be based on the anniversary of the particular member's sign-up. It is to be understood that payment functions can be accomplished automatic via electronic transfers of funds to member bank accounts. In any event, the administrator preferably withholds payments that are less than a threshold amount (*e.g.*, ten dollars).

FIG. 10 illustrates a method for compensating members according to an alternative embodiment of the invention. Beginning at step 1002, members responsible for creation of a product are preferably compensated with a ranking that demonstrates their ability to create valuable products. The administrator assigns a number of points to each member at step 1004 based on his or her participation and the success of the product. Each team member receives one point at step 1006 when the member's share of sales is equivalent to 10 sales of the product. Step 1008 defines a formula for calculating the points given member. At step 1008:  $(\# \text{ points for a product}) = (\# \text{ of sales} \div 10 \text{ sales per point}) \times (\# \text{ shares earned in product} \div \text{total shares in product})$ .

Step 1010 involves assigning points to each team member based on the monetary compensation that the member received for the product. For example, each team member receives one point for every \$100 in compensation received for a product. Proceeding to step 1012, the success rating is determined by adding unit sale points to compensation points but fractional points are discarded at step 1014.

As an additional incentive, the administrator posts real-time rankings of top point-getters (cumulative, monthly, etc.) on its site with corresponding rewards and perks for success. By rewarding successful members and providing ranking recognition, the administrator can develop productive competition and reinforce its objectives.

It is contemplated that the administrator may encounter certain issues relating to state and federal tax laws and desire to minimize its exposure to taxes related to the payment of compensation to members. According to the invention, system 100 preferably

executes routines for handling the collection of tax-related member information. First, only members that have communicated all of the required information will be paid. This information includes, for example, social security number, U.S. mailing address, and U.S. bank account. For relatively large payments (*e.g.*, over \$1,000), system 100 preferably  
5 submits the member's social security number for a validity check automatically over the Internet. System 100 also generates a report flagging all invalid and/or duplicate social security numbers, along with an e-mail to the particular member requesting that he or she update the necessary fields prior to any additional payments being made. A representation within the sign-up screen (and a later reaffirmation prior to the member receiving his or  
10 her first payment) verifies the accuracy of the member's profile and acknowledges that any employment or income taxes related to the payment of money to a member are the responsibility of the member. This statement is also used to advise the member to consult with a tax advisor.

In one preferred embodiment of the invention, the collaborative development  
15 system 100 also performs member initiation and account management stages 416, 418. At initiation stage 416, the administrator collects enough information on each member for compensation and verification needs. The administrator provides members with information about their account and ratings at account management stage 418. A members services stage 420 is provided for resolving disputes between members and the like.

20 In the present illustration, the general-purpose computers of system 100 are controlled by a WINDOWS operating system, such as WINDOWS 95, WINDOWS 98, or WINDOWS 2000. It is contemplated, however, that the present system would work equally well using MACINTOSH computers or even another operating system such as a LINUX, WINDOWS CE, UNIX or a JAVA based operating system, to name a few.

25 Using the client, *i.e.*, computer 304, to operably connect to server 204 -- in a well-known manner dependent upon the technology of computer network -- users will access various user interfaces, which may take the general form depicted in FIGS. 11-20. These figures suggest the use of Java applets in a WINDOWS environment. Of course, while the present disclosure is being made in a Java/WINDOWS type environment, use of this

environment is not required as part of the present invention. Other programming languages and user-interface approaches may also be used to facilitate data entry and execute the various computer programs that make up the present invention.

FIG. 11 is an exemplary screen display of a member registration interface. In one embodiment of the invention, the prospective participant receives a log-in ID via e-mail after completing a membership application. The log-in ID is then used when the participant accepts the terms of a membership agreement.

FIG. 12 is an exemplary screen display of a member home page. In this example, each member has his or her own home page for obtaining project news, account information, current member statistics and the like. In one example, the home page summarizes news from the computer, programming and technology worlds to encourage members to visit the home page to learn of new opportunities. The home page may also include a summary of the members site statistics, including information regarding compensation due in future periods.

FIG. 13 is an exemplary screen display of an interface for assisting the member in completing and submitting his or her résumé. According to a preferred embodiment of the invention, the résumé provides a key mechanism for members to connecting with each other and for members to become active participants in the community. In one approach, the member may elect to hide his or her résumé from the public. This option, if available, may be implemented at any time by the member.

FIG. 14 is an exemplary screen display of a discussion area interface. System 100 preferably provides a community environment to encourage members to discuss and propose ideas for projects. It is contemplated that project teams will have their own discussion groups for private postings.

FIG. 15 is an exemplary screen display of a project search interface. The project search interface preferably assists members in finding suitable projects. For example, the project search page enables the members to search for projects by type, project manager, or even those projects that are designated as "open-source."



FIG. 16 is an exemplary screen display of an interface for project job postings to facilitate members in identifying desirable projects and joining them. In this example, a member can search for projects that are currently seeking team members and view individual job and project descriptions, e-mailing the respective project managers.

5           FIG. 17 is an exemplary screen display of an interface for initiating a project. Using the project initiation interface, a member can, for example, specify the type of project (*e.g.*, new software, an upgrade, a manual), and the public and private descriptions of the project. In this example, the project initiation interface also permits the member to initiate a private project.

10           FIG. 18 is an exemplary screen display of a résumé search interface. Preferably, system 100 permits searching for a project manager and team members. For example, if a particular member initiates a project, he or she has the option of being the project manager. The initiating member also has the option of searching member résumés for a project manager based on skill levels and ratings. Once a project manager is selected, the search  
15 interface permits the project manager to search for team members. As described above, the project manager is eligible for bonus points, or shares, by selecting members who have yet to be part of a project. Using this search interface, the project manager can view résumés and send e-mail invitations to the prospective team members. It would also be possible for authorized users to utilize the résumés and evaluations on the site in recruiting  
20 computer professionals. In this way, the recruiters would receive some third party feedback on prospective candidates that may be useful in recommending or tailoring a search.

FIG. 19 is an exemplary screen display of an interface for the project manager to assign and manage tasks. In this example of a project tasks screen, the project manager  
25 can obtain details on which member is performing which task, the progress of the task, and the share value of the task. System 100 preferably provides such a screen display in its default form as a template for the project manager to assign shares and tasks, such as design, coding, testing, and documentation, to potential team members.

FIG. 20 is an exemplary screen display of an interface for the user to rate the project manager and other team members based on their performance. Typically, the peer review occurs before the project is completed. If the member is also the project manager, he or she will rate all members of the team.

5           Following the review process, the project can generally be considered completed. In a preferred embodiment, the team receives the majority of revenues generated by the sale/distribution of the product, according to each member's involvement (represented by shares). As described above, the member home page preferably provides account balance information and facilitates the member becoming involved in another project.

10           The software, which comprises an ordered listing of executable instructions for implementing logical functions, may selectively be embodied in any computer-readable medium for use by or in connection with an instruction execution system, apparatus, or device, such as a computer-based system, processor-containing system, or other system that may selectively retrieve the instructions from the instruction execution system,  
15           apparatus, or device and execute the instructions. In the context of this document, a "computer-readable medium" is any means that may contain, store, communicate, propagate, or transport the program for use by or in connection with the instruction execution system, apparatus, or device. The computer readable medium may selectively be, for example but not limited to, an electronic, magnetic, optical, electromagnetic,  
20           infrared, or semiconductor system, apparatus, device, or propagation medium. More specific examples (a non-exhaustive list) of the computer-readable medium would include the following: an electrical connection (electronic) having one or more wires (such as the Internet), a portable computer diskette (magnetic), a RAM (electronic), a read-only memory (ROM) (electronic), an erasable programmable read-only memory (EPROM or  
25           Flash memory) (electronic), an optical fiber (optical), and a portable compact disc read-only memory (CDROM) (optical). Note that the computer-readable medium may even be paper or another suitable medium upon which the program is printed, as the program can be electronically captured, via for instance optical scanning of the paper or other medium,

then compiled, interpreted or otherwise processed in a suitable manner if necessary, and then stored in a computer memory.

When introducing elements of the present invention or the preferred embodiment(s) thereof, the articles "a," "an," "the," and "said" are intended to mean that  
5 there are one or more of the elements. The terms "comprising," "including," and "having" are intended to be inclusive and mean that there may be additional elements other than the listed elements.

In view of the above, it will be seen that the several objects of the invention are achieved and other advantageous results attained.

10 As various changes could be made in the above constructions and methods without departing from the scope of the invention, it is intended that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

## CLAIMS

## WHAT IS CLAIMED IS:

1. A computer information network system for developing a product in an electronic format, said system comprising:

a central controller including a server, said server connecting the central controller to a computer network and supporting a site on the network, said central controller further  
5 including a data storage device having at least one database storing the product in an electronic format, said product database being accessible at the site on the network by one or more selected users;

one or more local computers connected to the central controller, said local computers executing an administrator interface for communicating with the central  
10 controller to manage administrative functions of the system;

one or more remote computers situated remotely from the local computer and connected to the network, said remote computers each executing a developer interface for communicating with the central controller via the network to permit the users to access the site supported by the central controller, said developer interface further establishing data  
15 transfer links between the remote computers and the central controller for the users to modify the product thereby facilitating collaboration between the users to develop the product.

2. The system of claim 1 wherein the product is defined by a project having a plurality of tasks to be completed by the users, each of said tasks being assigned a predetermined share value and said project having a predetermined total share value.

3. The system of claim 2 wherein each user receives an amount of shares upon completion of the project based on the assigned share value of each task completed by the

respective user, and wherein the data storage device includes a database storing information relating to the shares received by the users.

4. The system of claim 3 wherein the database storing information relating to the shares further stores information relating to compensation for each user for revenues derived from sales of the product as a function of the amount of shares received by the user upon completion of the project.

5. The system of claim 2 wherein the data storage device includes a database storing project templates, said templates defining one or more parent tasks in the project.

6. The system of claim 5 wherein the parent tasks are subdivided into child tasks, said child tasks having cumulative share values that equal the share values of the parent tasks from which the child tasks are subdivided.

7. The system of claim 5 wherein one of the users is selected as a project manager and wherein the project templates define an amount of shares to be received by the project manager upon completion of the project.

8. The system of claim 2 wherein the administrator interface includes a routine for tracking changes in allocating share values to the tasks and maintaining historical information relating thereto.

9. The system of claim 1 wherein the administrator interface includes a source control routine for tracking modifications to the product .

10. The system of claim 1 wherein each user receives a rating upon completion of the project, and wherein the data storage device includes a database storing information relating to the ratings received by the users.

11. The system of claim 10 wherein the administrator interface includes a routine for determining the rating for each user as a function of peer evaluations by the users on the project.

12. The system of claim 10 wherein the administrator interface includes a routine for determining the rating for each user as a function of one or more of the following: peer evaluations from the users on the project; experience on one or more prior projects; sales of product developed by the one or more prior projects; and customer satisfaction with  
5 product developed by the one or more prior projects.

13. A method of developing a product, said method comprising the steps of:  
providing a site on a computer network accessible by a plurality of registered  
users;  
defining a project having a plurality of tasks to be completed for developing the  
5 product;  
assembling a team of one or more of the users;  
assigning a predetermined share value to each of the tasks;  
assigning one or more of the tasks to one or more of the users on the team;  
awarding an amount of shares to one or more users on the team upon completion of  
10 the project based on the assigned share value of each task completed by the respective  
user; and  
compensating the users on the team for revenues derived from sales of the product  
as a function of the amount of shares awarded the users upon completion of the project.

14. The method of claim 13 further comprising the step of storing information relating to the shares awarded the users in a database accessible by the users at the site on the network.

15. The method of claim 13 further comprising the steps of defining one or more parent tasks in the project using a template.

16. The method of claim 15 further comprising the step of subdividing the parent tasks into child tasks, said child tasks having cumulative share values that equal the share values of the parent tasks from which the child tasks are subdivided.

17. The method of claim 15 wherein the step of assembling the team of users includes selecting one of the users as a project manager and wherein the template defines an amount of shares to be received by the project manager upon completion of the project.

18. The method of claim 13 further comprising the steps of tracking changes in allocating share values to the tasks and maintaining historical information relating thereto.

19. The method of claim 13 further comprising the step of tracking modifications to the product using a source control routine.

20. The method of claim 13 further comprising the step of rating each user on the team as a function of peer evaluations by the users on the team.

21. The method of claim 13 further comprising the step of storing the product in an electronic format in a database, said database being accessible at the site on the network by the users on the team for storing respective portions of the product associated with the assigned tasks.

22. A computer information network system for developing a product in an electronic format, said system comprising:

a central controller including a server, said server connecting the central controller to a computer network, said central controller further including a data storage device

- 5 having at least one database storing the product in an electronic format, said product database being accessible on the network by one or more selected users, said product being defined by a project having a plurality of tasks to be completed by the users, each of said tasks being assigned a predetermined share value and said project having a predetermined total share value; and
- 10 one or more remote computers situated remotely from the local computer and connected to the network, said remote computers each executing a developer interface for communicating with the central controller via the network to permit the users to access the product database.

23. A computer data signal embodied in a carrier wave for facilitating the compensation of one or more participants in a collaborative development effort, the computer data signal comprising:

- means for organizing a plurality of tasks leading to the completion of the
- 5 collaborative development effort;
- means for allocating a limited number of shares to each of the tasks;
- means for assigning the one or more participants to work on the tasks; and
- means for distributing to each respective participant of the one or more participants upon completion of the collaborative development effort the shares allocated to each of the
- 10 tasks assigned to the respective participant.

24. The computer data signal embodied in a carrier wave according to claim 23 wherein the allocating means includes predetermined share assignment for each of the tasks.

25. The computer data signal embodied in a carrier wave according to claim 23 wherein the allocating means includes means for adjusting the limited number of shares allocated to a selected one or more of the tasks.



26. The computer data signal embodied in a carrier wave according to claim 25 wherein the adjusting means includes means for evaluating a technical contribution made by the respective participant on the selected task.

27. The computer data signal embodied in a carrier wave according to claim 23 wherein the assigning means includes a database of potential participants.

28. The computer data signal embodied in a carrier wave according to claim 27 wherein the assigning means includes means for searching the database of potential participants.

29. The computer data signal embodied in a carrier wave according to claim 23 wherein the assigning means includes:

means for posting the tasks for review by potential participants; and

means for communicating between a project manager of the collaborative

5 development effort and the potential participants.

30. A method of facilitating the compensation of one or more participants in a collaborative development effort, said method comprising the steps of:

organizing a plurality of tasks leading to the completion of the collaborative development effort;

5 allocating a limited number of shares to each of the tasks;

assigning the one or more participants to work on the tasks; and

distributing to each respective participant of the one or more participants upon completion of the collaborative development effort the shares allocated to each of the tasks assigned to the respective participant.

31. The method of claim 30 wherein the allocating step includes assigning predetermined a share value for each of the tasks.

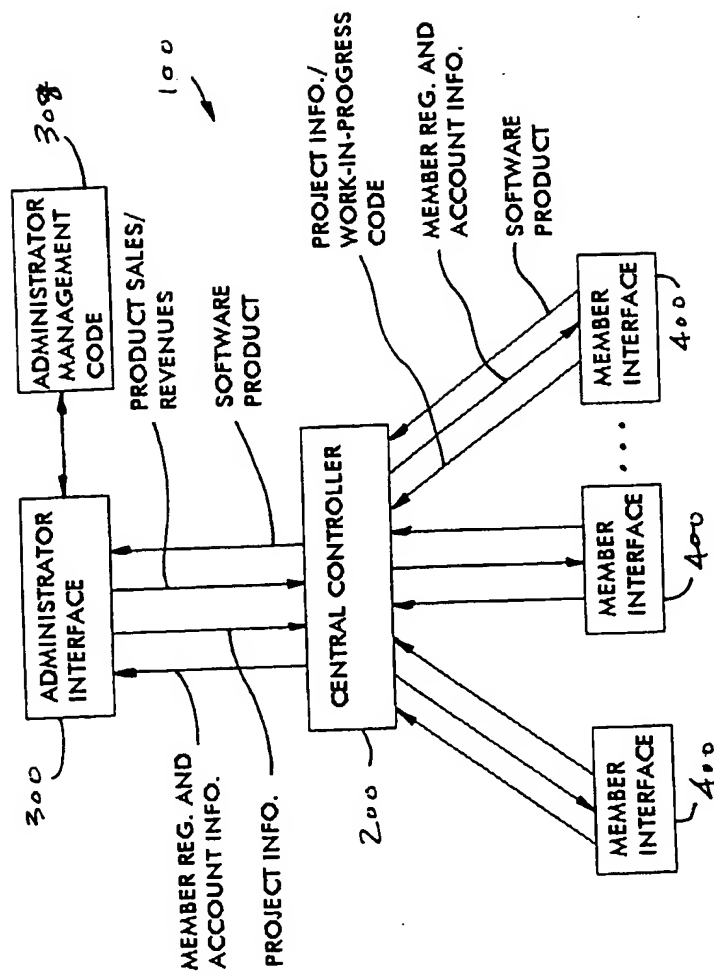
32. The method of claim 30 wherein the allocating step includes adjusting the limited number of shares allocated to a selected one or more of the tasks.

33. The method of claim 32 wherein the adjusting step includes evaluating a technical contribution made by the respective participant on the selected task.

34. The method of claim 30 wherein the assigning step includes searching a database of potential participants.

35. The method of claim 30 wherein the assigning step includes the steps of:  
posting the tasks for review by potential participants; and  
communicating between a project manager of the collaborative development effort and the potential participants.

FIG. 1



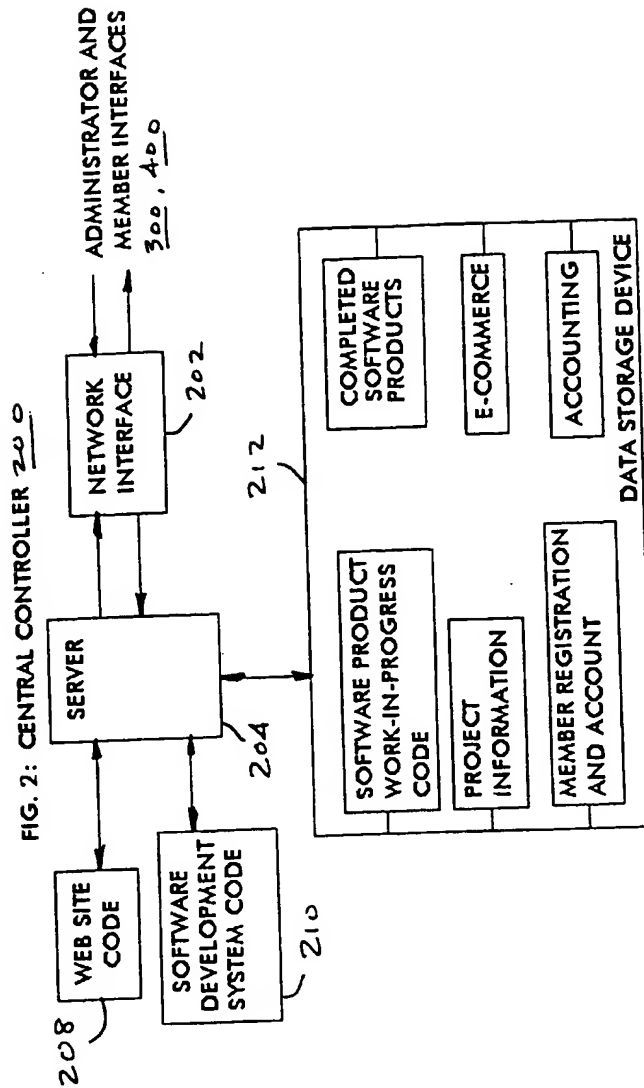


FIG. 3A: ADMINISTRATOR INTERFACE 300

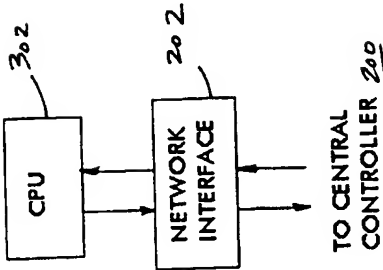


FIG. 3B: MEMBER INTERFACE 400

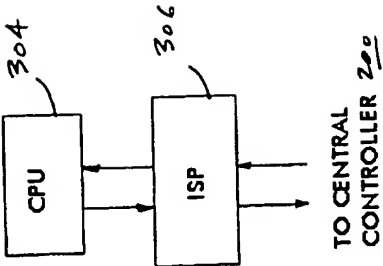


FIG. 4

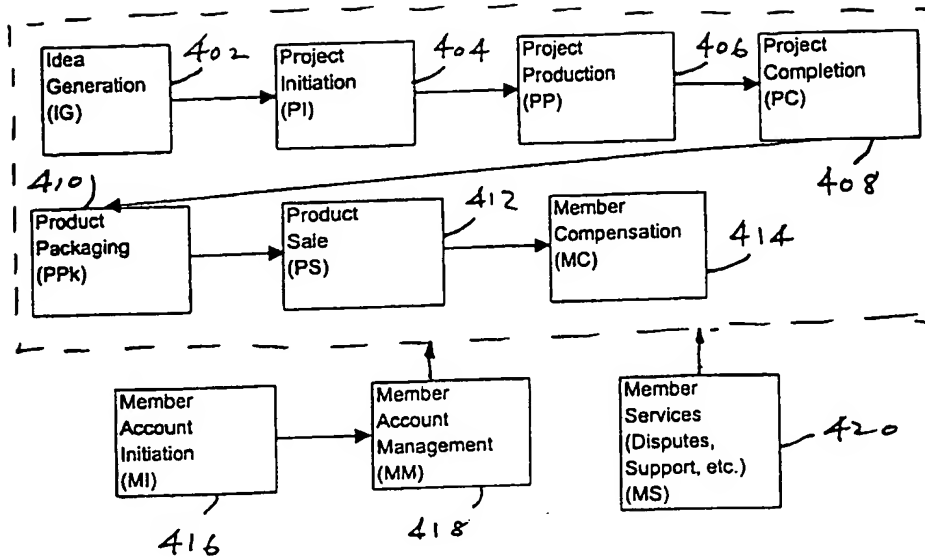


FIG. 5

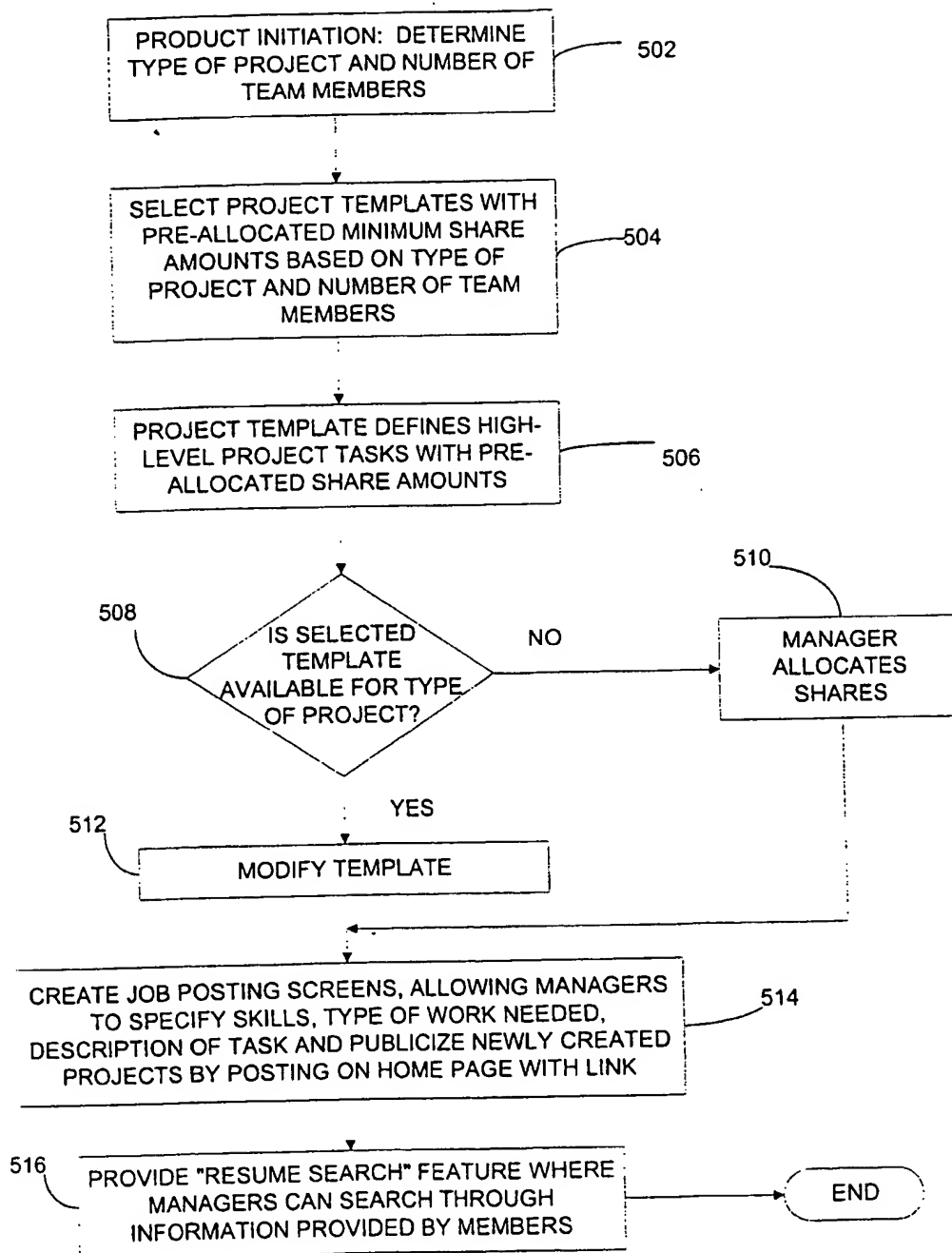


FIG. 6

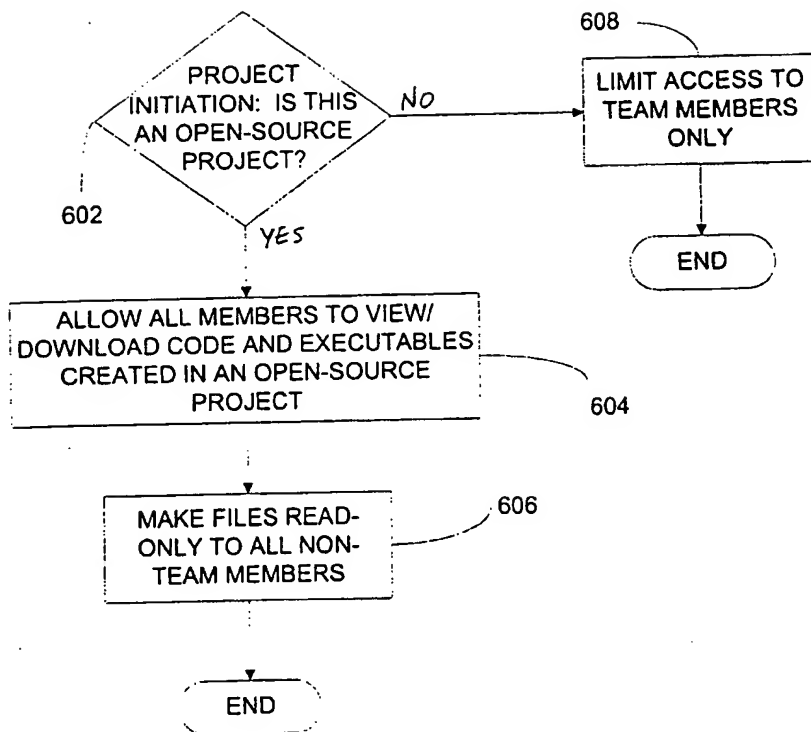




FIG. 7

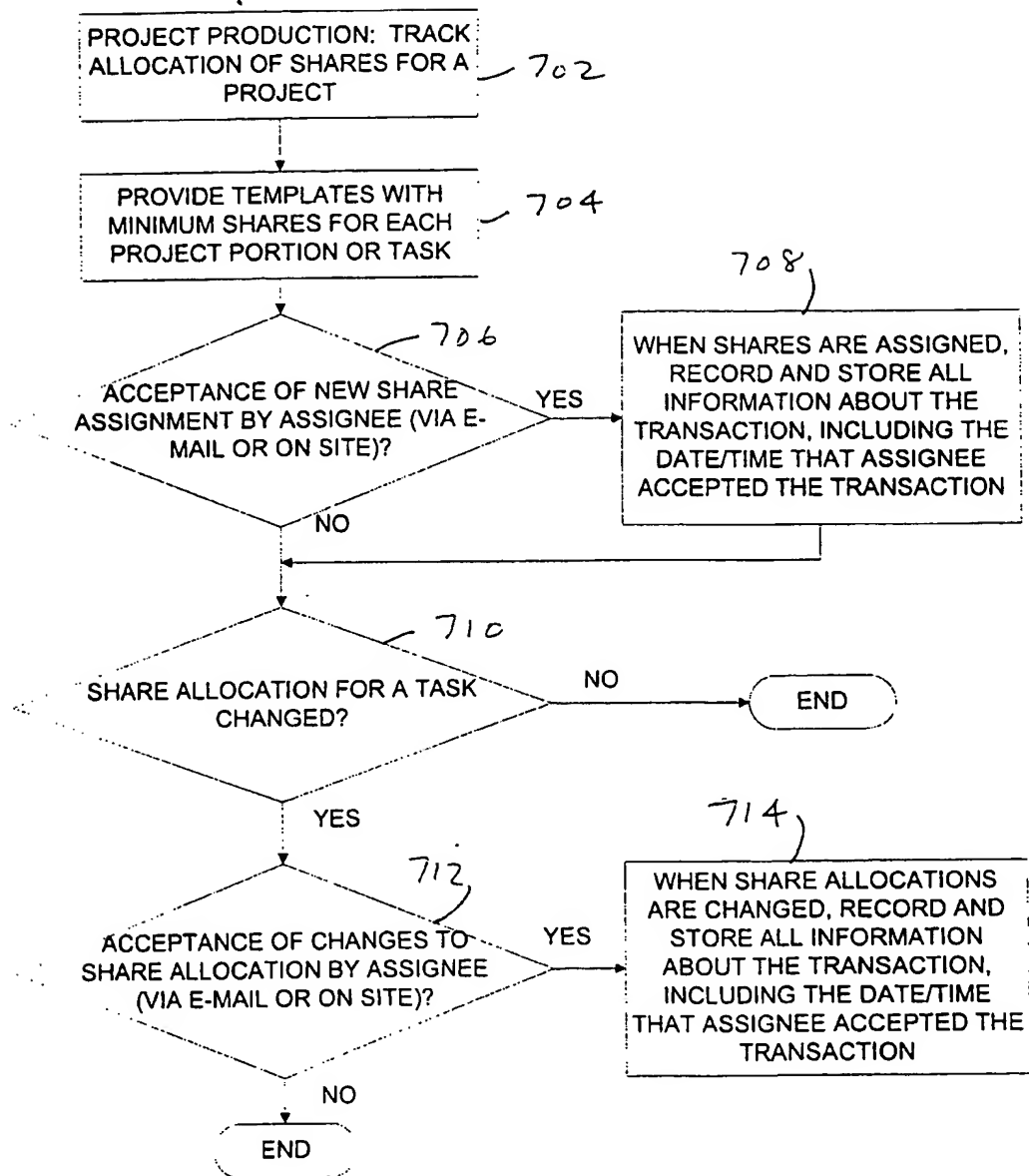


FIG. 8

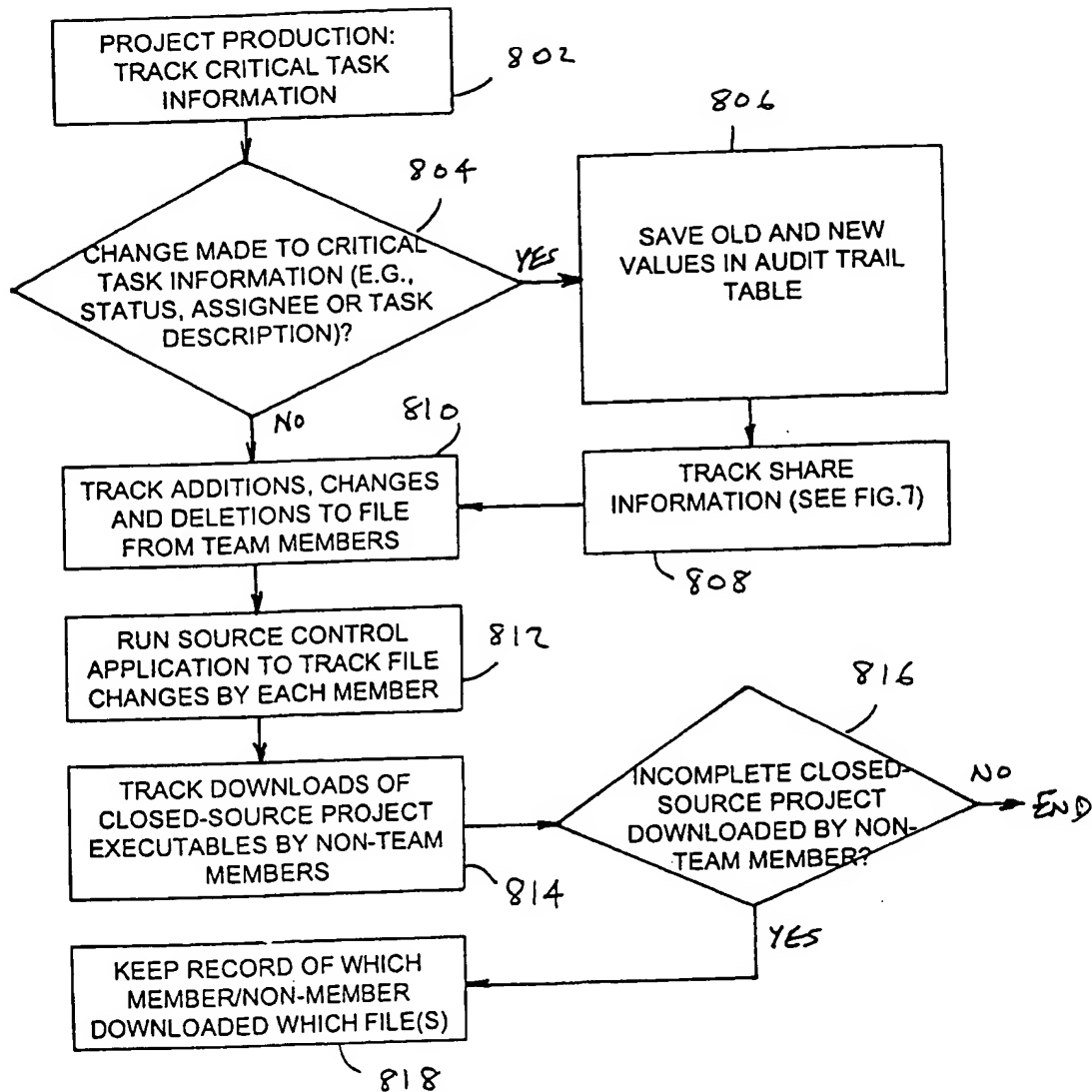


FIG. 9

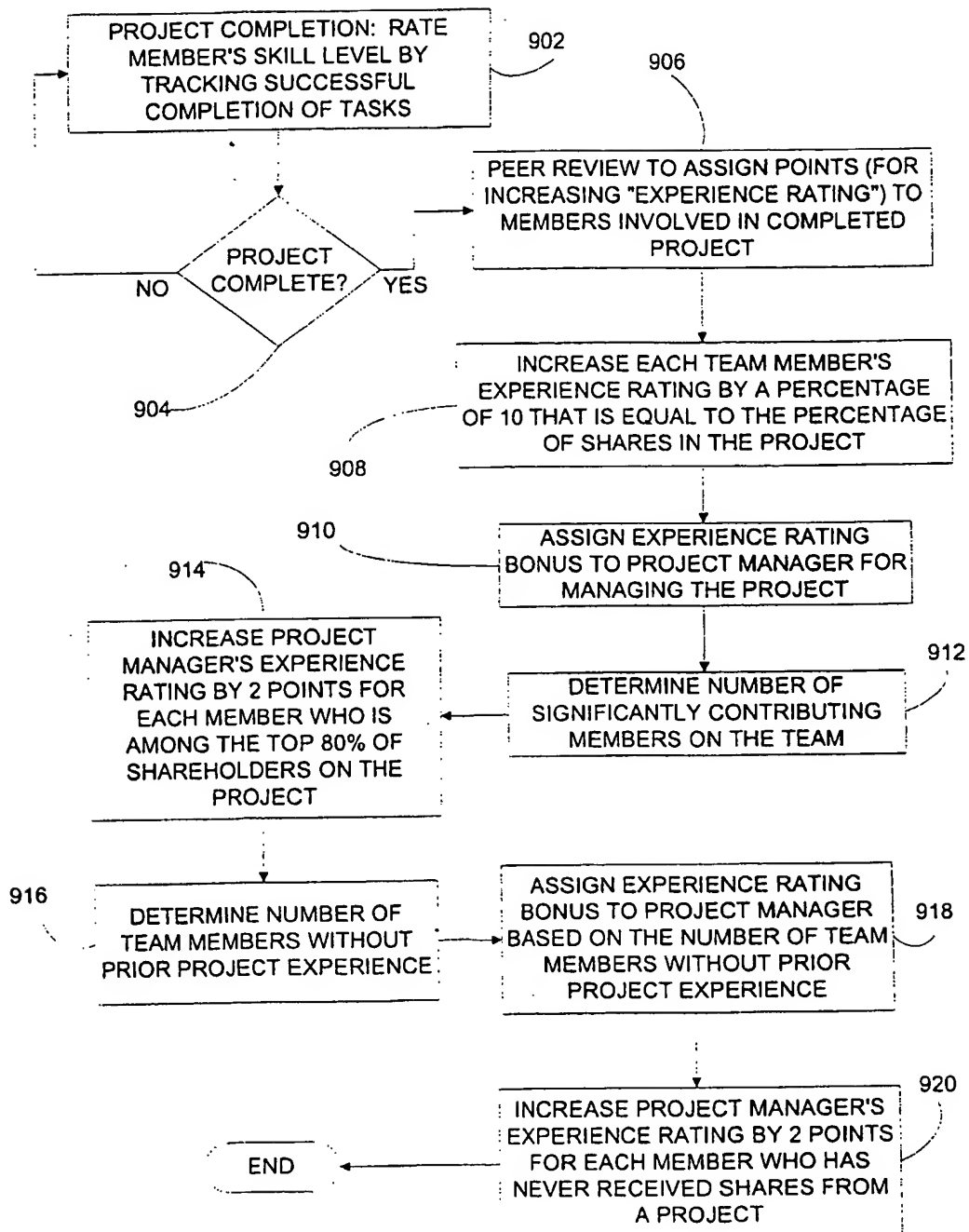
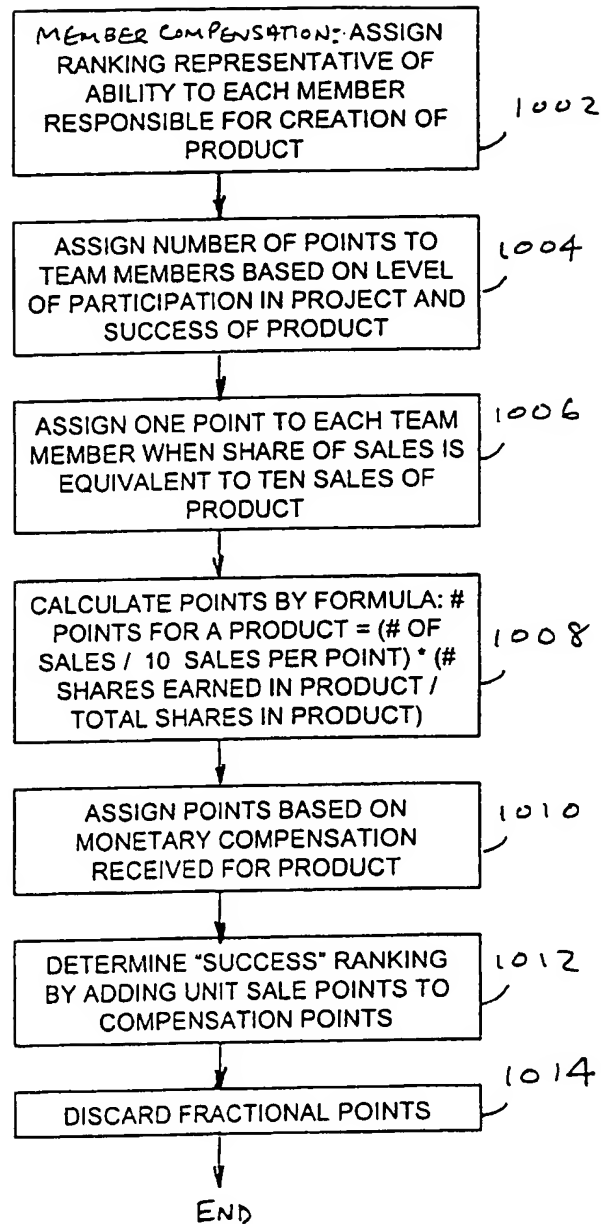


FIG. 10



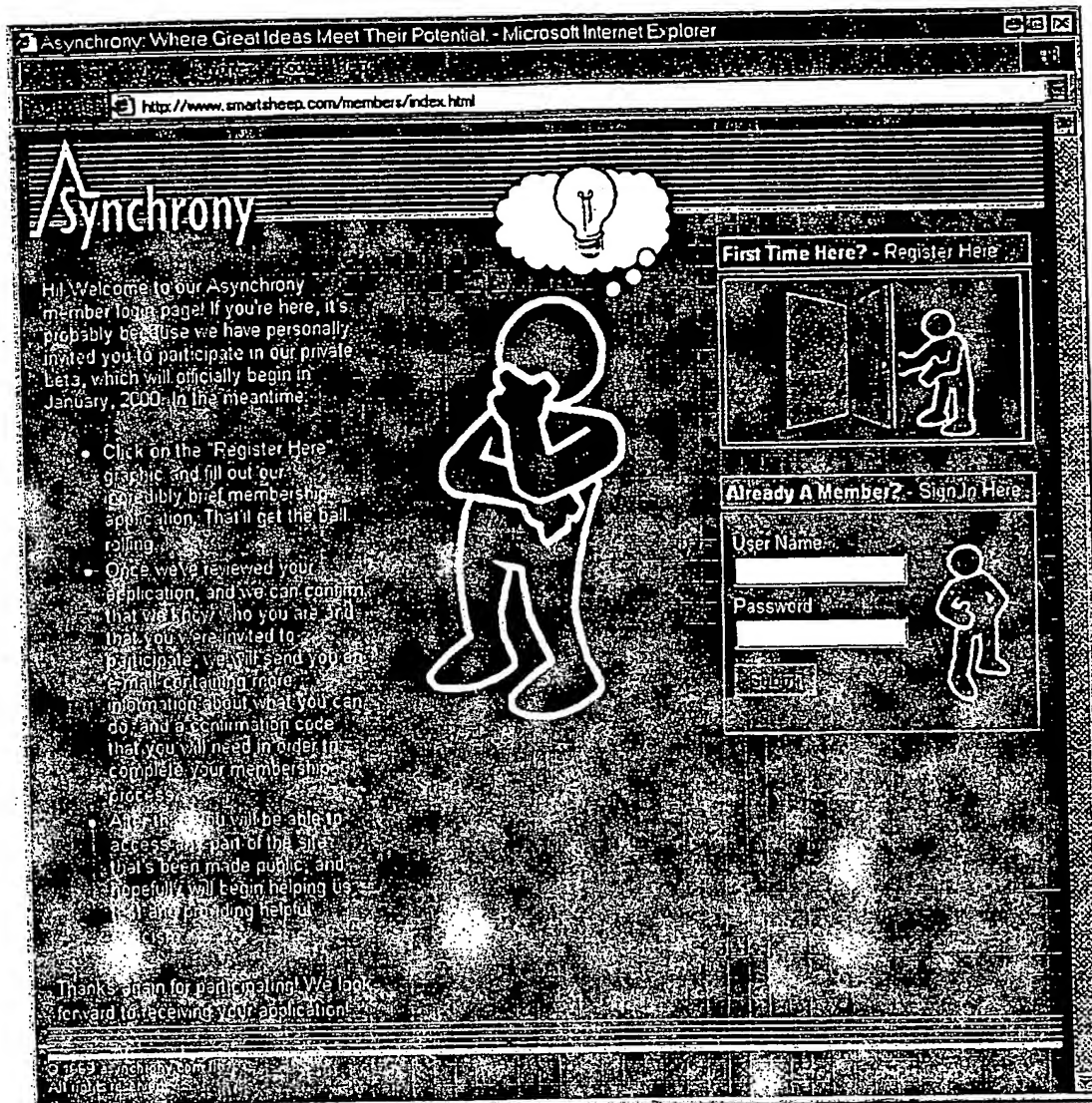


FIG. 11

Asynchrony Member Home - Netscape

http://www.asynchrony.com/member\_home.jsp

# Asynchrony

PUBLIC BETA

Member Home

zarniwoop

## Currently Active Projects for zarniwoop

- Idr. Chem
- Garden Weasel
- Palm Fantasy B-Ball
- Yahoo B-Ball Palm an
- Scha-wind

## Latest Project News

## Latest Public and/or OpenSource Projects:

- Web Host Admin Panel: Web Host admin control panel for FreeBSD platform web enabled project planners
- Trade Empire Online: An Online Space Trading Game
- Real-Time Graphics: Visual C++ module for including real-time graphics in scientific programs
- WEB-like word processor: A word processor for UNIX console that is similar to Word Perfect 5.0 for DOS
- Console Stock Ticker: NASDAQ stock ticker and weather for console
- HTML Book Archiver: Take a HTML Book (ie from a CD) and build it into a database collection
- Pre-School Book 1
- Gladiator Arena: 3D Game where players fight and ring against each other wild animals, monsters
- UML Breakthrough: Java-based UML Repository

## Site News:

- Asynchrony is now in its official public beta testing period. Let us know how we can improve the site to help you get the most out of your membership. Thanks for joining us in the revolution!
- To get started, the most important thing is to complete your member resume so that you can join projects. Also, check out Asynchrony Information Central to learn all about the site.
- Coming soon: Bug tracking and rating for projects, member rating details screens, and detailed share information.

## Current Site Statistics

Total Registered Users	3410
Total Active Members	2957
Total Projects	143
Total Active Projects	140
Total Posted Jobs	232

## Current Member Statistics

Current Rating	0
Total Shares Owned	1010
Average % Owned/Project	6.7

## Account Information:

Current Balance	\$0
Total Earned	\$0
Next Payout Date	None scheduled

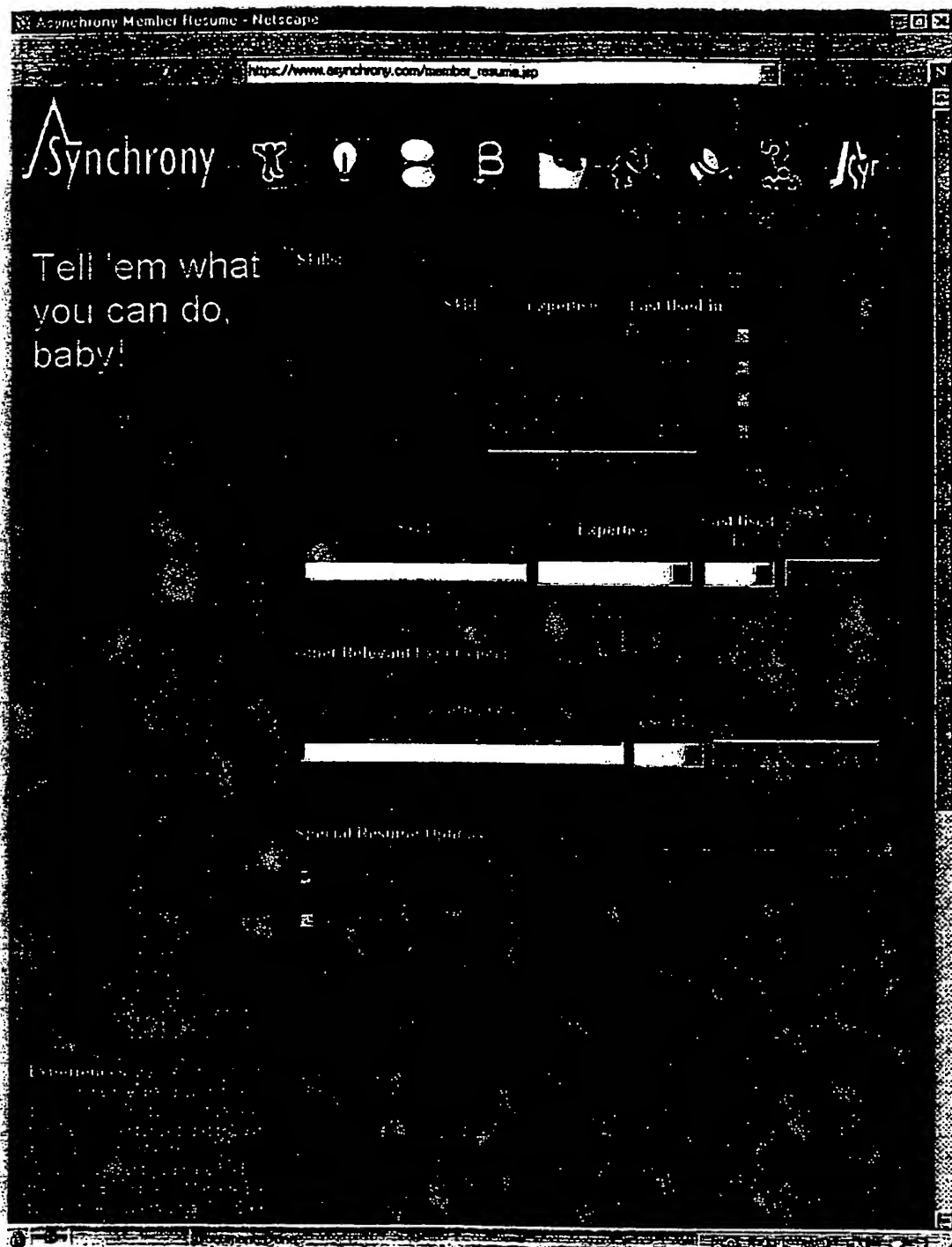
## TechWeb News

- Chip Sales Soar To Record Heights In April**  
A number of market researchers have increased their worldwide forecasts for semiconductor sales growth in 2000.  
Fri Jun 02 03:25:50 CDT 2000 - SB
- Security Audit Aims To Outfox Hackers**  
E-Verify emits out dangerous entry points in Fox's fortress.  
Fri Jun 02 03:12:39 CDT 2000 - JAV
- Outlook Patch Poses Compatibility Risk**  
Microsoft says products from 20 vendors could be affected.  
Fri Jun 02 03:07:22 CDT 2000 - JAV
- FCC Reforms Access Charges**  
FCC approves plan that would reduce access charges to long distance carriers by \$3.2 billion.  
Fri Jun 02 03:10:58 CDT 2000 - TELE
- Java Licensees Want More Changes From Sun**  
IBM, BEA Systems say Java changes to improve standardization process don't go far enough.  
Fri Jun 02 06:04:47 CDT 2000 - JWA

Member Home | Membership Information | Send An E-Mail | Create a Project | Discussion Area | Download Area | Project Job Postings | Resume Search | Project Info Search | Help | About Asynchrony | Log Out

Document Done

FIG 12



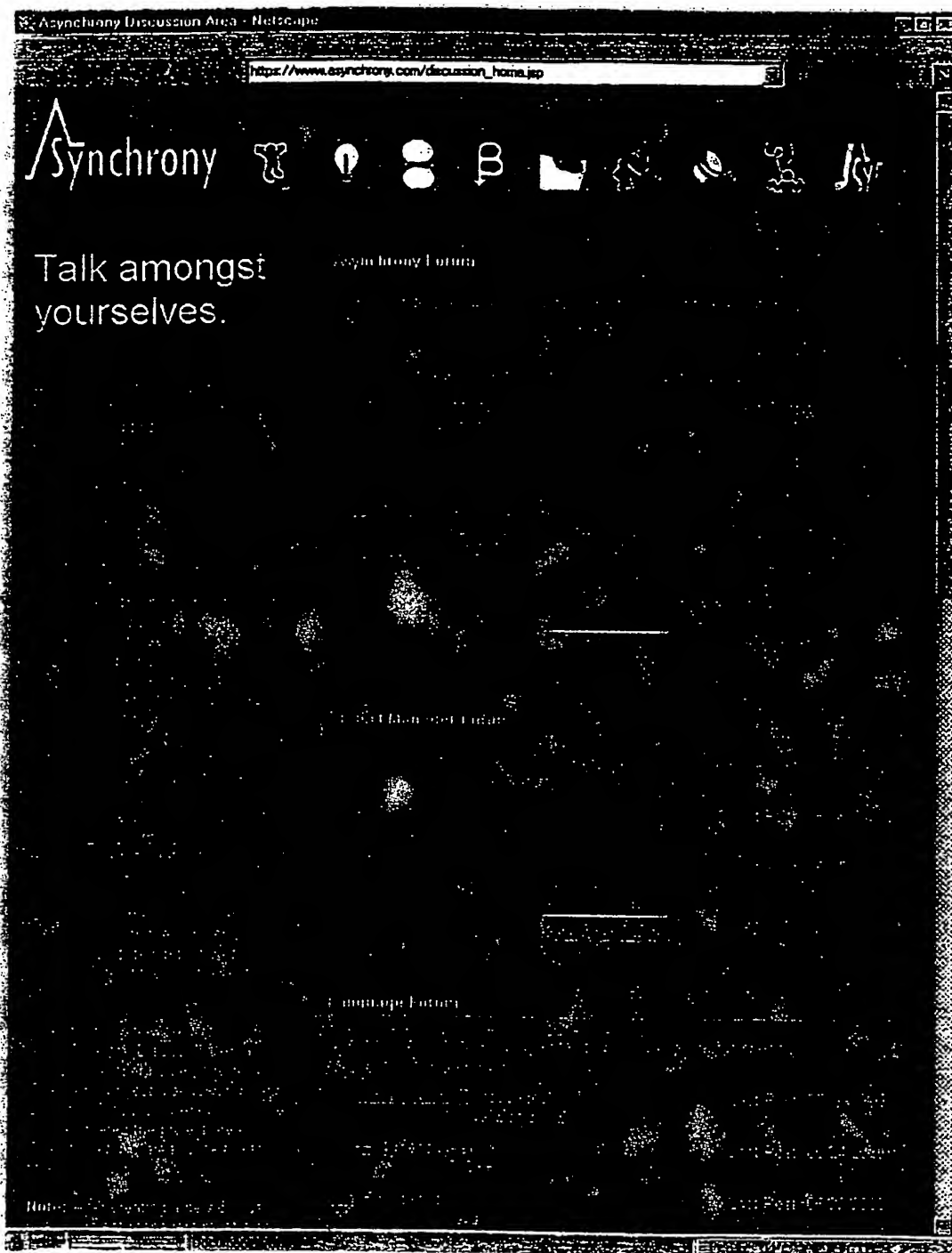


FIG. 14



Asynchrony Project Info Search - Netscape

Address: [https://www.asynchrony.com/project\\_search.asp](https://www.asynchrony.com/project_search.asp)

Type a Web Address or Keyword and press Enter

**Asynchrony**  
PUBLIC BETA

Project Info Search

## Looking for something...

Check out who's doing what with our search engine. Can't use wildcards yet, but if your search string is a portion of a word, you'll find it.

**Name:** Project Name

**Manager's User ID:** Find out what your favorite managers are up to

**Project Type:** Pull down menu for your convenience (No thanks needed)

**Keywords:** If you're looking for a certain type of project, try putting some choice words here, and that will help narrow down the list. Need suggestions? Try typing in an application's platform, subject, category, or language.

**Enter Search Criteria:**

Project Name:

Manager's User ID:

Project Type:

Keywords:

☐ Only display projects designated as Open Source

[Member Home](#) | [Membership Information](#) | [Send An E-Mail](#) | [Create a Project](#) | [Discussion Area](#) | [Download Area](#) | [Project Job Postings](#) | [Resume Search](#) | [Project Info Search](#) | [Help](#) | [About Asynchrony](#) | [Log Out](#)

Document Done

FIG 15

Asynchrony Project Job Postings - Netscape

File Edit View Go Search Home Help

Bookmarks Location: [https://www.asynchrony.com/job\\_search.jsp](https://www.asynchrony.com/job_search.jsp)

Member Home

**Asynchrony** PUBLIC BETA

Project Job Postings

## Looking for something to sink your virtual teeth into...

Find the Project of your dreams with our Job Posting Search Engine. Can't use wildcards yet, but if your search string is a portion of a word, you'll find it.

**Project Name:**

**Position:**

**Manager:**

**Project Type:**

**Keywords:**

**Project Status:**

**Project Name:** Name of the project that you're looking for. Help

**Position:** String

**Skill:** What experience is needed to perform the task? You should probably enter a skill that you possess. Help

**Manager:** Is there a particular person that you'd like to work with?

**Project Type:** Which type of project are you looking for?

**Keywords:** Narrow down your list of projects that qualify by typing some words that would describe the type of project you'd like to work on. Game? Palm application? Device Driver? Try different words and see what happens.

**Project Status:** Has it started yet? What's up with that?

[Member Home](#) | [Membership Information](#) | [Send An E-Mail](#) | [Create a Project](#)  
[Discussion Area](#) | [Download Area](#) | [Project Job Postings](#) | [Resume Search](#)  
[Project Info Search](#) | [Help](#) | [About Asynchrony](#) | [Log Out](#)

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[https://www.asynchrony.com/member\\_home.jsp](https://www.asynchrony.com/member_home.jsp)

FIG. 16

Asynchrony Create a Project - Netscape

File Edit View Go Communication Help

Address: https://www.asynchrony.com/project\_create.jsp

# Asynchrony

PUBLIC BETA

Create a Project

## The longest journey begins with a single form.

In order to create a project, you must fill out this form. Fields that are marked with an asterisk (\*) are mandatory information. (Sorry for the heavy-handed tactic, dude)

Anyway, after you've gone to the trouble of filling out all this information in excruciating detail, you then have the right to press the **Add My Project** button below to create the necessary information and setup your project site. When this process is complete, you will be transported as if by magic to your new project site.

Detail for the curious or slow:

**Public project name:** The name for your project that is viewed by members at large (or email). This can be as clear or as confusing as your desire.

**Short Public Project Description:** Your mission if you choose to accept it is to describe your project in 60 characters or less. Haiku is acceptable.

**Long Public Project Description:** O.K. Shakespeare, here's your chance to use a whopping 1000 characters to describe your project. Remember, if you're stilled or want to keep things quiet, feel free to be enigmatic and misleadinn.

### Project Manager

First of all, you need to decide if you will be the project manager, or if you just want to create the project and find someone else to manage it. For more information on the distinction between these roles, [click here](#).

☒ I will be the Project Manager

### Public Information

The following information will be public to everyone on the site. If you want a "stealth project" that no one knows about, you can leave all of this information blank. Keep in mind that the more information you reveal, the easier it will be to attract interested people. However, if your idea is especially original and you already have a team in mind, you can make the project secret to keep someone else from copying you.

Public Project Name:  (20 characters)

Short Public Project Description: (60 characters)

Long Public Project Description: (1000 characters)

Public Searchable Keywords: (80 characters)

If you need team members, you can check the box below to denote that your project is accepting applications.

☐ This project is currently accepting applications

### Private Information

The following information is required, but is only accessible by your team and by Asynchrony personnel. If you have JavaScript enabled and you filled in the previous section, this information should already be filled in.

\*Project Name:  (20 characters)

FIG. 17

Asynchrony Resume Search - Netscape

https://www.asynchrony.com/resume\_search.jsp

**Asynchrony** PUBLIC BETA

Resume Search

Enter Search Criteria:

Member Name:

Skill:  Expertise Level:

Rating:

Asynchrony:

Peer:

Experience:

Quality:

☐ Only show members who have never been part of a project team

**Find that special someone for your project.**

As a project manager, you know how important it is to match specific tasks to the right person. Use our search tool to target the people with the proper mix of experience, ability and sense of humor.

**Member Name:** Check out the skills of those whom you know by member name.

**Skill:** Pick up to three skills and their self-rated expertise level.

**Rating:** How they've been rated on Asynchrony:

- **Asynchrony:** Their combined and weighted score.
- **Peer:** Their rating from fellow members.
- **Experience:** Their experience on Asynchrony.
- **Quality:** Quality of the work they've performed on Asynchrony.

**Recruiter check box:** Hire newbies and receive extra points! See Ratings.

**Your Resume:** Edit your member resume.

[Member Home](#) | [Membership Information](#) | [Send An E-Mail](#) | [Create a Project](#) | [Discussion Area](#) | [Download Area](#) | [Project Job Postings](#) | [Resume Search](#) | [Project Info Search](#) | [Help](#) | [About Asynchrony](#) | [Log Out](#)

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Document Done

FIG 18



Asynchrony Project Tasks - Netscape

File Edit View Go Communications Help

Bookmarks Location www.asynchrony.com/project\_task\_list.jsp?plusMinus=+228+taskId=349&projectId=223

**Asynchrony**  
PUBLIC BETA

Garden Weasel / zamiwoop

Project Tasks

Project Name: Garden Weasel, Manager: Zamiwoop, Total Shares: 10000

Total tasks: 14    Total completed tasks: 3    Total unallocated shares: 2500    Total shares approved: 1010

Task ID	Description	Assigned To	Status	# Shares
1	DESIGN	unassigned	Unassigned	2000
1.1	Test task	Zamiwoop	Not Started	500
1.2	Test task 2	milkyway	Not Started	700
2	DEVELOPMENT	unassigned	Unassigned	2500
2.1	Test subtask	Zamiwoop	Approved	10
2.1.1	Test sub-subtask	unassigned	Unassigned	0
2.1.2	test	unassigned	Unassigned	0
2.1.3	test	unassigned	Unassigned	0
3	TESTING	unassigned	Unassigned	1500
4	DOCUMENTATION	unassigned	Unassigned	500
5	ADMINISTRATION	unassigned	Unassigned	1000
5.1	Project Creation (Auto Generated)	Zamiwoop	Approved	200
5.2	Project Management (Auto Generated)	Zamiwoop	Approved	800

Filter by: ALL ALL

Project Home | Discussion Area | Project Tasks | Project Team Members | Peer Review |  
Project Options | Member FAQ | Member Home

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Document Done

FIG 19

Asynchrony Peer Review - Netscape

File View Home Common Only History

Bookmarks Location [http://www.asynchrony.com/project\\_peer\\_review.jsp?projectid=223](http://www.asynchrony.com/project_peer_review.jsp?projectid=223) What's Related

**Asynchrony**  
PUBLIC BETA

Team Member to Review:  
milkyvay

[Submit Peer Review](#)

**Peer Review**

## The future of your community rests in your fingers.

The peer rating system is a crucial part of our community. It is primary way that people can make good decisions about who to choose for their projects. And who to work with as project manager.

Please be as accurate as possible on each attribute. Don't allow strength or weakness in any particular area to impact your evaluation on other areas.

If you have any specific comments that you want the user you rate to see, enter them in the comments section. Your ratings and comments will remain anonymous, so please be honest in your assessment.

### Attribute Ratings:

Attribute	(Needs improvement)					(Couldn't be better)				
	1	2	3	4	5	6	7	8	9	10
Quality of work	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Willingness to cooperate	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Knowledge	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Helpfulness	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ability to communicate	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Dependability	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Availability	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Initiative	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Positive attitude	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Turnaround time	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

### Comments

**Strengths:**

**Areas for Improvement:**

Document Done

FIG 20

# INTERNATIONAL SEARCH REPORT

International Application No  
PCT/US 00/27373

**A. CLASSIFICATION OF SUBJECT MATTER**  
IPC 7 G06F9/44

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)  
IPC 7 G06F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, INSPEC, IBM-TDB

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	GORTON I ET AL: "COLLABORATIVE TOOLS AND PROCESSES TO SUPPORT SOFTWARE ENGINEERING SHIFT WORK" BT TECHNOLOGY JOURNAL, GB, BT LABORATORIES, vol. 15, no. 3, 1 July 1997 (1997-07-01), pages 189-198, XP000722028 ISSN: 1358-3948 page 190, right-hand column, line 13 -page 192, right-hand column, line 3	1,22
A		2-21, 23-35
X	EP 0 485 934 A (CIT ALCATEL) 20 May 1992 (1992-05-20) column 2, line 3 - line 30	1,22
A	figures 1,2	2-21, 23-35
	--- -/-	

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

\* Special categories of cited documents:

- \*A\* document defining the general state of the art which is not considered to be of particular relevance
- \*E\* earlier document but published on or after the international filing date
- \*L\* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- \*O\* document referring to an oral disclosure, use, exhibition or other means
- \*P\* document published prior to the international filing date but later than the priority date claimed

- \*T\* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- \*X\* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- \*Y\* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- \*A\* document member of the same patent family

Date of the actual completion of the international search

8 February 2001

Date of mailing of the international search report

16/02/2001

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2  
NL - 2280 HV Rijswijk  
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,  
Fax: (+31-70) 340-3016

Authorized officer

Brandt, J

# INTERNATIONAL SEARCH REPORT

International Application No  
PCT/US 00/27373

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	<p>CHANG K H ET AL: "SOFTWARE DEVELOPMENT AND INTEGRATION IN A COMPUTER SUPPORTED COOPERATIVE WORK ENVIRONMENT"</p> <p>SOFTWARE PRACTICE &amp; EXPERIENCE, GB, JOHN WILEY &amp; SONS LTD. CHICHESTER, vol. 28, no. 6, 1 May 1998 (1998-05-01), pages 657-679, XP000749025</p> <p>ISSN: 0038-0644</p> <p>the whole document</p> <p>-----</p>	1-35



# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 00/27373

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 0485934 A	20-05-1992	FR 2669446 A	22-05-1992
		AT 155262 T	15-07-1997
		CA 2055647 A	17-05-1992
		DE 69126761 D	14-08-1997
		DE 69126761 T	23-10-1997
		DK 485934 T	24-11-1997
		ES 2103766 T	01-10-1997
		JP 4299734 A	22-10-1992
<hr/>			



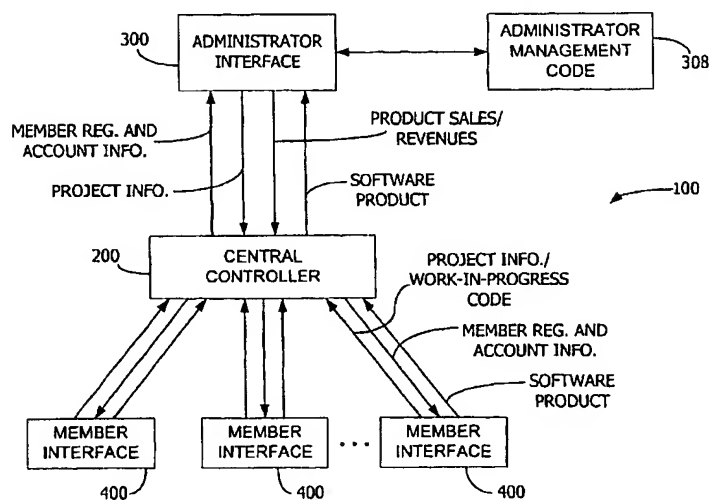
**(10) International Publication Number**  
**WO 01/025910 A1**

## PCT

- |  |  |
|--|--|
| <p>(51) <b>International Patent Classification<sup>7</sup>:</b> <b>G06F 9/44</b></p> <p>(21) <b>International Application Number:</b> <b>PCT/US00/27373</b></p> <p>(22) <b>International Filing Date:</b> <b>4 October 2000 (04.10.2000)</b></p> <p>(25) <b>Filing Language:</b> <b>English</b></p> <p>(26) <b>Publication Language:</b> <b>English</b></p> <p>(30) <b>Priority Data:</b><br/> 60/157,762                      5 October 1999 (05.10.1999)      US</p> <p>(71) <b>Applicant (for all designated States except US):</b> <b>ASYN-CHRONY.COM, INC.</b> [US/US]; 11397 Lakefront Drive, Earth City, MO 63045 (US).</p> <p>(72) <b>Inventors; and</b></p> <p>(75) <b>Inventors/Applicants (for US only):</b> <b>ELFANBAUM, Steven, M.</b> [US/US]; Asynchrony.com, LLC, 11397 Lakefront Drive, Earth City, MO 63045 (US). <b>MCKIE,</b></p> | <p><b>Nathan, W., Jr.</b> [US/US]; Asynchrony.com, LLC, 11397 Lakefront Drive, Earth City, MO 63045 (US). <b>ELFANBAUM, Robert, J.</b> [US/US]; Asynchrony.com, LLC, 11397 Lakefront Drive, Earth City, MO 63045 (US). <b>ELFANBAUM, David</b> [US/US]; Asynchrony.com, LLC, 11397 Lakefront Drive, Earth City, MO 63045 (US).</p> <p>(74) <b>Agents:</b> <b>BAIN, Robert, M.</b> et al.; Senniger, Powers, Leavitt &amp; Roedel, 16th floor, One Metropolitan Square, St. Louis, MO 63102 (US).</p> <p>(81) <b>Designated States (national):</b> AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW.</p> <p>(84) <b>Designated States (regional):</b> ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian</p> |
|--|--|

[Continued on next page]

**(54) Title: SYSTEM AND METHOD FOR COLLABORATIVE PRODUCT DEVELOPMENT**



**(57) Abstract:** A computer information network system and method for facilitating the collaborative development of a product in an electronic format. A server connects a central controller to a network and supports a site on the network. The central controller includes a data storage device having at least one database storing the product being developed in an electronic format. The database is accessible at the site on the network by one or more selected users. A local computer executes an administrator interface for communicating with the central controller to manage administrative functions of the system. One or more remote computers situated remotely from the local computer and connected to the network each execute a developer interface for communicating with the central controller via the network. The developer interface permits the users to access the site supported by the central controller and establishes data transfer links between the remote computers and the central controller for the users to update the product being developed.



patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

**Published:**

— with international search report

**(48) Date of publication of this corrected version:**

14 November 2002

**(15) Information about Correction:**

see PCT Gazette No. 46/2002 of 14 November 2002, Section II

*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

## SYSTEM AND METHOD FOR COLLABORATIVE PRODUCT DEVELOPMENT

### BACKGROUND OF THE INVENTION

The invention relates to an electronic system and method that allows multiple participants to collaborate in the development of products, including software products, and, in particular, such an electronic system and method using a computer information network, such as the Internet, which allows participants to collaborate in the development of software products while situated at sites remote from each other and remote from an administrator site on which the software products are centrally maintained and to receive compensation related to each participant's collaborative effort.

With the evolution of wide area computer information networks, such as the Internet, it has become possible for persons to electronically access, download, and/or transmit information from or to a remotely located site. With the development of the Internet, businesses have increasingly turned to electronic commerce as an effective means for communicating with potential customers and conducting business. Typical business applications of the Internet include on-line auctions, catalog sales, want-ad sites and other forms of electronic commerce. Another application of on-line commerce provides an electronic forum in the form of a website intended to bring freelance software developers together with companies, individuals or other entities in need of software development.

The architecture of present software development websites generally allows the company or other entity in need of software development to submit a proposed project to the website via a conventional Internet interface. Once approved by the administrator of the website, the project proposal is posted on the website where software developers who are registered with the site may interface with the site via an Internet interface and view the proposals. The software developers respond to the proposal by posting on the website their own bid/proposal for completing the project, including an estimate of the time and cost for developing the software. The submitting company accesses the website and

reviews the bids and selects the developer who will develop the software. The developer then works, independently of the website, to develop the software, and is paid by the submitting company upon completion of previously agreed upon milestones.

One disadvantage of such a system is that it does not provide the ability for  
5 collaboration among remotely situated software developers to effectively collaborate in the development of a product. For example, the conventional system lacks a centrally located source code database where code can be centrally stored and accessed by the software developers. Thus, where several software developers desire to be involved in the joint development of a software product, the developers must either be co-located, must  
10 continually electronically transfer the source code back and forth to each other, or must use publicly available collaboration software independent of the systems on the Internet site. The larger the number of developers working on a single software product, the more logistically difficult this becomes.

One type of collaborative development website meets some of these needs, but is  
15 used to facilitate the development of "open source" software. Open source software is software whose source code is made available to the public at no cost via the Internet or other media. However, these websites do not provide administrative control and compensation for the developers. The administrator of the website publishes the software that is developed on the website or other media and makes it available to the public for  
20 free. In the conventional open source system described above, the software developers cannot share financially in the success of a well-developed product since there is no mechanism to measure the contribution of any individual developer and unclear ownership issues with respect to the underlying code.

There is a need, therefore, for a system and method which allows remotely situated  
25 software developers and others, such as beta testers, documenters, marketers, and the like, to more efficiently collaborate on the development of software products and to share financially in the success of the developed products.

## SUMMARY OF THE INVENTION

The invention meets the above needs and overcomes the deficiencies of the prior art by providing an improved system and method of collaborative development of products. Among the several objects and features of this invention is the provision of such system and method for collaborative software development that permit remotely situated software developers to collaborate on the development of software products via a computer information network; the provision of such system and method that facilitate the successful development of software products; the provision of such system and method that permit the software products being collaboratively developed to remain in a central storage location having controlled access; the provision of such system and method that permit an administrator to manage the operation of the system via a central administrative website; the provision of such system and method that permit project managers to maintain control of and manage the various product development projects independent of the administrator; the provision of such system that provides software developers with incentives to collaborate in the development of software products at the central administrative website; the provision of such system and method that permit software developers involved in collaborative development of software products to be financially rewarded from the successful marketing and implementation of the software products; the provision of such system and method that permit the software developers to be compensated in accordance with their respective levels of effort and success in developing the software products; and the provision of such system and method that are economically feasible and commercially practical.

Briefly described, a computer information network system embodying aspects of the invention facilitates the development of a product in an electronic format. The system includes a central controller that has a server for connecting it to a network and for supporting a site on the network. The central controller also includes a data storage device having at least one database storing the product being developed in an electronic format. According to the invention, the database is accessible at the site on the network by one or more selected users. The system also includes a local computer and one or more remote computers. The local computer executes an administrator interface for communicating

with the central controller to manage administrative functions of the system. The remote computers are situated remotely from the local computer and connected to the network. The remote computers each execute a developer interface for communicating with the central controller via the network to permit the users to access the site supported by the central controller. The developer interface further establishes data transfer links between the remote computers and the central controller for the users to update the product being developed. In this manner, the system facilitates collaboration between the users to develop the product.

Another embodiment of the invention is directed to a method of developing a product in an electronic format. The method begins by providing a site on a computer network accessible by a plurality of registered users. The method also includes defining a project having a plurality of tasks to be completed for developing the product, assembling a team of one or more of the users, assigning a predetermined share value to each of the tasks, and assigning one or more of the tasks to each user on the team. According to the method of the invention, the product may be stored in an electronic format in a database that is accessible at the site on the computer network. In such a case, the users on the team store the respective portions of the product associated with their assigned tasks in the database. The method further includes the steps of awarding shares to the users upon completion of the project based on the assigned share values of the completed tasks and then compensating the users for revenues derived from sales of the product as a function of the shares awarded the users.

In another form, a computer information network system embodying aspects of the invention is for developing a product in an electronic format. The system has a central controller including a server and a data storage device. The server connects the central controller to a computer network. The data storage device has at least one database, accessible on the network by one or more selected users, storing the product in an electronic format. The product is defined by a project having a predetermined total share value and a plurality of tasks to be completed by the users, each task being assigned a predetermined share value. The system also includes one or more remote computers

situated remotely from the local computer and connected to the network. The remote computers each execute a developer interface for communicating with the central controller via the network to permit the users to access the product database.

Yet another embodiment of the invention is directed to a computer data signal embodied in a carrier wave for facilitating the compensation of one or more participants in a collaborative development effort. The computer data signal organizes a plurality of tasks leading to the completion of the collaborative development effort, allocates a limited number of shares to each of the tasks, assigns the one or more participants to work on the tasks, and distributes to each respective participant of the one or more participants upon completion of the collaborative development effort the shares allocated to each of the tasks assigned to the respective participant.

In another form, a method of facilitating the compensation of one or more participants in a collaborative development effort includes the steps of organizing a plurality of tasks leading to the completion of the collaborative development effort and allocating a limited number of shares to each of the tasks. The method further includes assigning the one or more participants to work on the tasks and distributing to each respective participant of the one or more participants upon completion of the collaborative development effort the shares allocated to each of the tasks assigned to the respective participant.

Alternatively, the invention may comprise various other methods and systems.

Other objects and features will be in part apparent and in part pointed out hereinafter.

#### BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a block diagram of a system for collaborative software development according to a preferred embodiment of the invention.

FIG. 2 is a block diagram of a central controller of the system of FIG. 1.

FIG. 3A is a block diagram of an administrator interface of the system of FIG. 1.



FIG. 3B is a block diagram of a member interface of the system of FIG. 1.

FIG. 4 is an exemplary flow diagram illustrating the operation of the system of FIG. 1 according to a preferred embodiment of the invention.

FIGS. 5 and 6 are exemplary flow diagrams illustrating decision steps  
5 implemented by the system of FIG. 1 for executing a project initiation stage of the flow diagram of FIG. 4.

FIGS. 7 and 8 are exemplary flow diagrams illustrating decision steps  
implemented by the system of FIG. 1 for executing a project production stage of the flow diagram of FIG. 4.

10 FIG. 9 is an exemplary flow diagram illustrating decision steps implemented by the system of FIG. 1 for executing a project completion stage of the flow diagram of FIG. 4.

FIG. 10 is an exemplary flow diagram illustrating decision steps implemented by the system of FIG. 1 for executing a member compensation stage of the flow diagram of FIG. 4.

15 FIG. 11 is an exemplary screen display of a member registration interface implemented by the system of FIG. 1.

FIG. 12 is an exemplary screen display of a member home page implemented by the system of FIG. 1.

20 FIG. 13 is an exemplary screen display of a résumé interface implemented by the system of FIG. 1.

FIG. 14 is an exemplary screen display of a discussion area interface implemented by the system of FIG. 1.

FIG. 15 is an exemplary screen display of a project search interface implemented by the system of FIG. 1.

25 FIG. 16 is an exemplary screen display of a project job postings interface implemented by the system of FIG. 1.

FIG. 17 is an exemplary screen display of a project initiation interface implemented by the system of FIG. 1.

FIG. 18 is an exemplary screen display of a résumé search interface implemented by the system of FIG. 1.

FIG. 19 is an exemplary screen display of a project management interface implemented by the system of FIG. 1.

5        FIG. 20 is an exemplary screen display of a peer review interface implemented by the system of FIG. 1.

Corresponding reference characters indicate corresponding parts throughout the drawings.

#### DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS

10        This invention provides a system and method for assisting in the creation of software, writing, music composition, visual art, inventions and other products by various participants who are not necessarily associated by common employer (or other grouping) while providing some measure of remuneration for each participant based on that participant's contribution to the project. The invention may utilize the Internet or other  
15        computer network to facilitate interconnection of participants around the globe. These participants may use the invention to find and join creative projects that are compatible with the participants' skills and aspirations. Teams are formed on a project-specific (sometimes even task-specific) basis. Upon completion of the project, the participants disband and may join new teams for other projects. Team members are compensated with  
20        shares in each individual project they contribute to, which should provide the participants with some remuneration if the project sells commercially. All phases of the creative process, from initial idea submission to final editing or de-bugging, may be facilitated and tracked by the system. The combined features of the system make possible an advanced "serial" approach to the creation of products and materials that can be produced through  
25        collaborative efforts.

With reference to the drawings, and in particular FIGS. 1 and 2, a collaborative software development system according to one preferred embodiment of the present

invention is indicated generally at 100. The system 100 involves using a computer information network to collaborate the efforts of one or more users or participants (*e.g.*, software developers, beta testers, documenters, marketers, and the like) situated in remote locations toward developing a software product to be distributed by an administrator of the system. The computer network is any computer network that allows multiple computer systems to communicate with each other such as a Local Area Network (LAN), Wide Area Network (WAN), Intranet or the Internet using standard communications protocols. It should also be noted that the computer network could comprise the public telephone network with the server acting as a dial-up bulletin board and the clients dialing in directly to the server via the telco network.

In one preferred embodiment, the computer information network is a wide area or global network such as the network commonly referred to as the "Internet." In general, connections to the wide area network known as the Internet provide computer users with access to a number of resources, including documents on the World Wide Web, a hypertext-based information service that allows web browser clients to access information from web servers. With an Internet connection via a web server, and using specific web browser software, a user can browse the World Wide Web. Examples of such software include Netscape Navigator® and Microsoft Internet Explorer™. Those skilled in the art recognize that a suite of protocols, referred to as TCP/IP provides a standardized format for Internet data communication between, for example, a server and client. The TCP/IP protocol suite is named for its two main protocols, *i.e.*, the transmission control protocol (TCP) and the Internet protocol (IP). As is known in the art, web documents, or pages, are usually made up of multiple objects such as blocks of text, images, programs, audio clips and/or video clips. A hypertext transfer protocol (HTTP) provides for the transport of bitstreams representing these objects from a remote server to a local client and is the primary mode of transfer and presentation in this connection environment.

As used herein, the term "administrator" broadly refers to an individual, company or other entity responsible for providing and maintaining an electronic forum, such as a site on the world wide web, bulletin board, or other platform, accessible by software

developers and others collaborating efforts to develop software products. The software products may be developed, for example, for distribution and/or sale by the administrator, or pursuant to a development agreement between the administrator and a company or individual seeking specified software products. The term "member" broadly refers to an individual, company or other entity that registers with the administrator, in a manner proscribed by the administrator, as a software developer interested in developing and/or testing software products developed in accordance with the present system. It is to be understood that the members may be situated remotely from each other and from the administrator while still being located in, for example, a single building. In network terms, two nodes are considered remote from each other if they have separate network addresses.

A system 100 generally comprises a central controller 200, an administrator interface 300 capable of an input/output connection with the central controller 200, and one or more developer or member interfaces 400 also being capable of input/output connection with central controller 200. Any number of members may interface with central controller 200 via the member interfaces 400 to access information or participate in software development in accordance with the present system 100. Moreover, the members may interface with each other via central controller 200 as part of an online development community.

With reference to FIG. 3A, the administrator interface 300 through which the administrator communicates with central controller 200 comprises a local administrator computer 302 executing network accessing software, such as a conventional web browser, and a modem (not shown) or other interfacing hardware capable of establishing an input/output data transfer link to a network interface 202 (see FIG. 2). As shown in FIG. 3B, each member interface 400 is constructed in a similar manner with a remote user computer 304 connected to central controller 200 via a network. In this example, an Internet service Provider (ISP) 306 provides the remote computer 304 with a connection to a global network. Network connections in this manner are well known to those skilled in the art and will not be further described herein except to the extent set forth below.

Referring further to FIG. 2, central controller 200 includes the network interface 202, which is capable of establishing an input/output connection with the administrator interface 300 and member interfaces 400. A conventional server 204 supports the administrator's website code 208, such as hypertext markup language ("HTML").

5 Preferably, the website code 208 causes the administrator's website display to be downloaded to the accessing interface upon establishment of a connection between the administrator's or member's interface 300, 400 and network interface 202 of central controller 200. The server 204 also supports system operating source code 210, which will discussed in detail later herein, that allows members of system 100 to conduct various  
10 functions in accordance with the invention without establishing a direct interface with the administrator. It is contemplated that server 204 may be provided and operated by a contracted service provider, such as an ISP. However, it is understood that the administrator may itself provide and operate server 204 and remain within the scope of this invention.

15 The server 204 also supports one or more data storage devices 212 containing the various databases that are part of system 100. Among other things, the databases house member information (*e.g.*, tasks, shares), accounting information (*e.g.*, payments, amount of sales) and electronic commerce information (*e.g.*, products sold, purchaser information). In addition, the databases preferably include the completed projects in the form of a file  
20 storage system. Those skilled in the art recognize that one or more databases may be established for storing and managing the various data used in accordance with the present invention.

In the present illustration, system 100 can be further described in a client-server context in which the clients (*i.e.*, user computers 304) each preferably run on a general-  
25 purpose computer system such as an IBM compatible, Apple, or other equivalent personal computer that allows a developer to communicate with server 204 via an electrical connection, such as the plain old telephone system via direct-dial system, a global computer network, local area network (LAN) or wide area network (WAN). The general-purpose computer system further includes a network interface that allows for

communications with the computer network and may include, for instance, any Internet capable software program such as Netscape Navigator, Microsoft Internet Explorer, Mosaic, or their equivalents. Server 204 is preferably a general-purpose computer system such as an IBM compatible, Apple, Unix type workstation, or their equivalents that can  
5 facilitate inquiries from multiple simultaneous inquiries. Server 204 must also have a network interface that allows for communications with the computer network and may include Internet server software. Of course, the server and clients 204, 304, respectively, need not be running on the same type of general-purpose computer for the present system to be operational.

10 Although described in the context of computer source code, it is to be understood that a software product as contemplated by the present invention includes any number of products capable of being produced in an electronic form. For example, such products may include books, music, screenplays, research papers, movies and the like in addition to source code.

15 The collaborative software development system and method of the present invention will now be further described with reference to the flow charts of FIGS. 4-10.

In a preferred embodiment of the invention, the system 100 of FIG. 1 operates according to a flow diagram shown in FIG. 4. As shown, system 100 implements an environment for facilitating collaborative product development by a plurality of remotely  
20 located users. System 100 preferably executes a series of routines, described in detail below, as a function of input from the administrator and members for carrying out the invention. Beginning with the generation of a product idea at step 402, the present invention calls for a project initiation stage 404, followed by project production and project completion stages 406, 408. A project, consisting of a number of tasks usually  
25 performed by different member developers, defines the product under development. According to a preferred embodiment of the invention, the project is allocated a total number of shares, or a share value. Each user can earn a number of shares agreed upon between the user and the project manager, representing a percentage of the project's total share value, for the completion of an assigned task. After completion of the project,

product packaging and sales take place at stages 410, 412, respectively. Finally, the administrator compensates the member developers for their contributions to the project at stage 414 based on, for example, the number of shares in the project owned by each user and the amount of sales. In support of the project stages, the present invention executes member account initiation and management stages 416, 418 along with a member services stage 420 for supporting the members. The administrator computer 302 preferably executes routines, shown as administrator management code 308 in FIG. 1, for implementing the various steps of FIG. 4.

The idea generation stage 402 allows any member to define a discrete project based on an idea and become its "project manager." As shown in FIG. 17, the initiating member may select another member to become the project manager. In general the idea generation stage may involve the use of various aspects of the overall site. For instance, a member may search through other existing projects (see FIGS. 1, 15, and 16) looking for ideas. In another example, a member may generate an idea based upon comments found in discussion strands, programming language forums or news items, all of which may be made available via server 204 or through other equipment. The content may be generated by third parties, members to the site at large or members of particular projects.

The product initiation stage 404 helps members with ideas to turn those ideas into real, profitable products (*e.g.*, new software, upgrades, manuals). To complete stage 404, the invention sets forth certain major tasks to be performed. In general, tasks are divided into five main categories: design, development, testing, documentation, and administration. Each of the five categories of "parent" tasks may have any number of subcategories, or "child" tasks.

The data storage device 212 of central controller 200 preferably houses a "public résumé" database, including members' skill levels and ratings. Among other things, the résumé database provides a searchable set of résumés for members to search for qualified project managers. Other tasks in product initiation stage 404 involve providing an "idea incubator" discussion area, helping members to find project managers who can implement their ideas. An example of an idea incubator is creating a newsgroup-type discussion area

on a centralized site, which may be accessible via the Internet, where members can talk about ideas for projects. In addition, the idea incubator can be used as a computer bulletin board for members to publicly seek out project managers.

The stage 414, compensating members for generating ideas and organizing  
5 projects, depends on the status of the originating member as either a project manager/creator or simply the "project creator." If the member is the project creator, he or she receives a share of project from the project manager's share (*e.g.*, 20% of the project manager's fixed share). The allocation of shares is described in greater detail with respect to FIG. 7. Although the project creator has the ability to select a project manager, the  
10 present invention contemplates the project creator only having limited access to the project so the manager can maintain control.

Referring now to FIG. 5, project initiation stage 404 provides support to the project manager to help ensure the success of the project. Beginning at step 502, this stage calls for first determining the type of project at hand and the number of member developers that  
15 will be involved on the "team." In a preferred embodiment of the invention, data storage device 212 includes a database of project templates appropriate to various types and sizes of projects. The manager can select one of the templates at step 504 based on the parameters determined at step 502. The templates may define pre-allocated amounts of shares of the completed project for determining the amount of compensation for the team  
20 members. For example, the manager can use a template to assign shares and tasks, such as design, coding, testing, and documentation. In addition, at step 506, the templates preferably define high-level project tasks, with pre-allocated share amounts, to be completed by the team members. The manager typically selects an appropriate project template when the project is officially started. However, if a template is not available for  
25 the particular type of project, as determined at step 508, system 100 proceeds to step 510 for providing a default template in which the manager allocates shares to various tasks.

In a preferred embodiment of the invention, project initiation stage 404 also allows members to request that a new template be created or that an existing template be modified at step 512. This may be accomplished by sending an e-mail to a special company



address. This stage also includes providing a “classified” section at step 514 where managers can solicit team members. As an example, the present invention creates job posting screens allowing managers to specify the desired skills and type of work needed along with a description of the task at hand. Managers preferably specify a experience  
5 rating level that is appropriate for each position. At step 516, system 100 implements a “résumé search” feature where managers can search through information provided by members who want work. In this instance, the data storage device 212 of central controller 200 houses a database of member résumés. It is contemplated that employment recruiters will be authorized to search the skills and résumé database for a fee.

10 Members are given a way of searching for projects that have openings for developers with particular skills. At project creation, the manager can specify the types of skills needed to implement the project. The managers can also specify whether or not a project is “accepting applications.” Preferably, central controller 200 also includes a searchable database storing these project openings (see FIGS. 15 and 16). Consequently, a  
15 member can search for a new project using a variety of criteria including, but not limited to, project name, programming language, skill level required, project manager name, type of project (*i.e.*, game, utility, device driver, etc.), project status (*i.e.*, early development, beta testing, etc.).

According to the present invention, project initiation stage 404 further provides  
20 means for maximizing the number of members who are involved in projects and for increasing website traffic, member loyalty, and member satisfaction. One task in project initiation stage 404 for accomplishing this goal is to give members an incentive to become project managers. For example, project managers receive a fixed percentage of project shares (*e.g.*, 10%), as a minimum compensation. When the project begins, system 100  
25 automatically and permanently assigns the fixed percentage of shares to the project manager.

Referring now to FIG. 6, project initiation stage 404 further includes a routine for encouraging and supporting an open-source development community. At step 602, the present invention first determines whether the new project involves the creation of open-

source software. If so, the manager may choose to create an open-source project, having executable and source code that is freely available over the Internet. In the event that the manager specifies a project as open-source, all members can view and download the source code and executables, as indicated at step 604. In contrast, the non-team members  
5 only have read-only access to the files at step 606. If the code is not open, only team members have access to the code and executables at step 608.

FIG. 7 provides additional detail relating to the product production stage 406. At stage 406, the present invention contemplates that experienced members and/or employees of the administrator provide project management assistance. This may be accomplished  
10 by posting frequently asked questions, and their answers, on an Internet website and/or answered questions posed by e-mail. A private newsgroup for each team to communicate about the project and make announcements also provides project management assistance.

The product production stage 406 also includes a routine for allocating shares between team members to ensure that the users are compensated fairly for completing their  
15 assigned tasks. As shown in the exemplary routine of FIG. 7, beginning at step 702, system 100 tracks share allocation. At step 704, the templates described above define shares for each project portion in one embodiment of the invention. If the project manager and team member agree on a new share assignment, as decided at step 706, central controller 200 stores the share data in another database at step 708. Among other things,  
20 the share data includes information about the transaction including the date/time that the member accepted the allocation. Proceeding to step 710, the invention accounts for changes in share allocations. If the project manager and team member agree on the changed share assignment, as decided at step 712, central controller 200 stores the share data in the share information database at step 714. Thus, the project production stage  
25 permits tracking changes to the allocation of shares for a project and keeping historical information relating to the allocation.

The parent task categories described above include: design (*e.g.*, documenting requirements and program specifications, defining screens and reports); development (*e.g.*, construction of the code to follow the design); testing (*e.g.*, testing of individual units of

the product and/or the integration of product components); documentation (*e.g.*, technical writing, user manual documentation, download instructions); and administration (*e.g.*, correspondence, assigning tasks, task follow-up). It is to understood that the parent tasks described above are exemplary. The templates stored in data storage device 212 may

5 define and allocate shares for one or more of these parent tasks, a combination of these parent tasks, or other parent tasks depending on the nature of the project. As an example of task assignments, the project manager can approve any number of child tasks under a parent task category. The number of shares, however, may not exceed the total number of shares allocated in the next higher task level (*e.g.*, the “user documentation” task worth

10 500 shares under the “documentation” parent task can be further divided into “download documentation” worth 250 shares and “user manual” worth 250 shares.).

It is contemplated that beta testing, in addition to being one or more tasks of a project, could also be considered a project in and to itself. According to a preferred embodiment of the invention, system 100 provides a virtual beta testing facility, rewarding

15 consumers for testing software by providing them the opportunity to share in some sum of shares, prizes or other remuneration. In a collaborative software development community, such as the one established by the present invention, any member can help test a product and, as a result, share in the profits from the product. During beta testing, members, including non-programmers, can contribute to projects by finding and reporting problems,

20 or bugs, or enhancements relative to a particular software product and become eligible to receive shares in the future revenues of such product.

As described herein, beta testing according to the invention differs from traditional testing methods. Software companies have customarily distributed free, pre-release versions of software known as beta versions as part of their testing process to detect and

25 remedy problems with the software. The bugs that are reported during the beta release are used to make program improvements before the final version is marketed.

Notwithstanding the efforts of conventional beta testers, software products are typically marketed with bugs. Moreover, software companies often experience difficulty in finding enough people willing to participate and provide quality feedback on their beta product

versions. Generally, most traditional beta testers are merely compensated with free versions or discounts on the software they test, which is not likely to adequately motivate most beta testers to report bugs detected during testing.

The following describes an exemplary beta testing process:

- 5           1. A project manager submits a project for beta testing by changing the project status to "submitted."
2. The administrator reviews the project to ensure it is generally safe and ready for beta testing, and may create a suitable installation package for the project.
3. The community members locate projects ready to download for beta testing by  
10       clicking the "Beta Testing" icon on a beta test interface.
4. A community member downloads and tests the project, and submits any bugs or enhancement ideas.
5. The community rates each member's change request(s).
6. The project manager determines what action to take on the change request(s)  
15       and assigns a point value to each bug or enhancement reported, which may be based on the first posting of each individual bug and/or enhancement..
7. When the project is complete, the allocated shares for beta testing are then divided among all community members whose change requests are awarded points by the project manager.
- 20       8. All members who received shares earn a portion of the product's revenues, just as would any participant in the project.

In one embodiment, only the first person to report a bug or change can be awarded any reward. In this way, the testers are encouraged to look and sift through the project for bugs or changes in an expeditious manner.

- 25       In one embodiment, the project manager assigns a point value ranging from 1 to 20 (20 being the most valuable) to each request according to its value to the project. These points are important, because they represent the portion of the beta testing shares that the reporting member will receive. Since the total number of points is divided into the total number of shares allocated for beta testing, it is not advantageous for a project manager to

assign trivial or low point values to change requests. The points are only important in their relation to each other. Preferably, team members are not eligible to receive beta testing points when they submit requests for their own project because they earn shares from completing tasks and to prevent abuse.

5           As an example, the project manager can assign 1 or 2 points for spelling errors, 2 to 7 points for aesthetic errors, 6 to 13 points for usability errors (application is not intuitive), 10 to 17 points for functional problems, and 15 to 20 points for critical/system crash/data loss. In addition, any member of the community (regardless of whether he or she is on the project team or has requested any changes) can rate each change request on a  
10       scale of 1 to 5 (1 being the least important; 5 being the most important). This rating is averaged along with the other ratings to provide the project team with an idea of the relative importance of the change request to the user community.

          Further to this example, if the change request requires an additional task to be added, the project manager can enter a task reference number (*e.g.*, 3.4.1) from the project  
15       task list in the field indicated. This will create a link to the task detail screen, allowing team members to view change requests related to tasks they have been assigned. A request may be removed from its task link by clicking "remove" (this will not delete the request altogether). A number at the top of the project change request list can be used to represent the actual number of the project's total shares that the project manager has  
20       reserved for beta testers, preferably as a percent of total allocated shares.

          In a preferred embodiment illustrated by FIG. 8, project production stage 406 also tracks critical task information beginning at step 802. At step 804, system 100 queries whether critical task information, such as the project's status, the names of a team member, or a description of one of the defined tasks, has changed. At step 806, an audit  
25       trail database of central controller 200 preferably saves both the old and new values representing the critical information. Step 808 refers to the share tracking routine of FIG. 7.

          Referring now to step 810, the invention calls for tracking additions, changes, and deletions to a file. At step 812, system 100 executes a source control application to track

changes made by each member. In addition, system 100 tracks downloads of closed-source project executables by non-team members at step 814. Proceeding to step 816, the present invention determines whether a non-team member downloaded any files for an incomplete closed-source project. If so, central controller 200 makes a record of the  
5 downloads at step 818.

FIG. 9 illustrates routines performed in the project completion stage 408 of the invention. In certain cases, shareware for instance, the project completion stage 408 may not be required or even utilized. However, where a product will be sold, project completion stage 408 ensures that completed projects fit the administrator's company  
10 standards of quality. Project managers are charged with meeting certain quality standards before a project can be deemed completed. In one embodiment, a number of site members (*e.g.*, 10 or more) must download the resultant product for testing before the project is considered complete. For software products especially, the administrator of system 100 sets forth preferred standards. For example, all software applications must include user  
15 documentation in HTML or PDF format. Another example involves standardizing the software products by building products using most or all files and information contained in a source control database of central controller 200. Specific build instructions may be checked into the source control under the file name, BUILD.TXT, for example.

In one embodiment, team members provide feedback regarding the performance of  
20 their project manager, and vice-versa. The feedback affects the allocation of shares and, thus, affects the compensation received at completion of the project. As described with respect to project completion stage 408, the feedback can increase the rating given the manager or member. Participating in projects also increases the skill, or experience, rating of a project manager and participating in projects that result in widely-used products  
25 increases his or her quality rating.

One feature of the collaborative strategy of the present invention is to encourage project managers to select new, inexperienced members for their projects. In so doing, the overall pool of qualified members increases. In this instance, inviting participation of new members increases a project manager's experience rating.

Providing members with a share of project revenues based on the tasks they performed gives members an incentive to get involved in projects. In a manner similar to the feedback described above, the project manager preferably evaluates the performance of the members. The feedback can increase a member's rating. As with managers,

5 participating in projects increases the experience rating of a member and participating in projects that have high customer satisfaction increases his or her quality rating.

Referring to FIG. 9, step 902 begins a preferred rating process for evaluating the performance of each team member. In general, the administrator does not release compensation for the sale of a product to the project manager until he or she has given

10 feedback on each team member. The initial inquiry at step 904 is whether the project has been completed. Members who are involved in completed projects receive points that increase their experience rating. If the project is complete, the manager assigns points to the team members at step 906. Likewise, team members provide feedback on the project manager (and possibly other team members) at the end of the project. Although described

15 in the context of a completed project, it is contemplated that ratings may be given before project completion without deviating from the scope of the invention.

As before, the administrator does not release compensation for a product's sales to a team member until feedback has been provided for the project manager. The feedback system involves the use of a numerical value that determines an overall ranking in one

20 embodiment. For example, the member supplying feedback may give a rating between - 2 and 2 , where - 2 is the worst possible rank and 2 is the best. In another example, project members may be rated in various categories on a scale of 1 to 10 (see FIG. 20). As shown in FIG. 20, these categories may include quality of work, cooperation, knowledge, helpfulness, dependability, availability and more. In any approach, an overall feedback

25 score is then determined as a function of individual feedback ratings.

At step 908, team members receive a experience rating for participating in the project and the manager increases each team member's experience rating by a percentage of 10 that is equal to the member's percentage of shares in the project. Project managers receive a experience rating bonus for managing the project at step 910. In one

embodiment, project managers receive a experience rating bonus based on the number of team members that contributed significantly to the completion of the project. At step 912, this number is determined. Proceeding to step 914, system 100 operating in accordance with the present invention increases the project manager's experience rating by 2 points  
5 for each member who is among the top 80% of shareholders on the project.

Referring now to step 916, project managers also receive a experience rating bonus based on the number of members of the team who do not have prior project experience. For example, step 918 assigns a experience rating bonus to the project manager on this basis. At step 920, the administrator of system 100 increases the project manager's  
10 experience rating by 2 points for each member who has never received shares from a project.

In another preferred embodiment of the invention, member ratings are made up of three main performance-based components: peer, experience, and quality ratings. Upon completion of tasks, members rate their teammates and project manager and the project  
15 manager rates each member of the team based on factors such as quality of work, cooperation, knowledge, helpfulness, communication, dependability, availability, initiative, attitude, and turnaround time. In addition to the peer rating, each member receives a rating based on his or her experience level and a rating based on the quality (*i.e.*, success) of the project. The following provides an exemplary experience rating for  
20 members:  $(\text{member's shares}/\text{total shares for project}) \times (\text{\# of team members})$ ; and for Project Managers:  $(0.2 \times \text{\# of team members}) + (0.1 \times \text{\# of newbies on team}) + (\text{team member experience points})$ . A member's quality rating measures the success of projects in which the member has participated. The member receives this rating based on, for example, composite customer ratings of the product.

25 Each member's overall rating preferably comprises a weighted combination of the three individual ratings. For one example, the peer rating could be 75%, the experience rating 20%, and the quality rating 5% of the member's overall rating. Of course, other weights could be used without deviating from the scope of the invention.



In a preferred embodiment of the invention, the product packaging stage 410 of system operation involves providing standard user interfaces and documentation for the products. This stage also creates a standard installation/setup program if possible.

The goal of the product sales stage 412 is to effectively and simply sell the products resulting from the collaborative development effort of the present invention. As an example of the sales process, customers purchase products via authorized credit card transactions and then download the products via the Internet. Member accounts are preferably credited for sales upon collection for sales on account or other sales not collected via credit card transaction. If the developed products are sold to or through a third party, the team members receive their percentage of what the administrator receives from the third party. It is also contemplated that products will be packaged for physical, rather than electronic, sale. In these instances, the team members receive their percentage of the administrator's net income from sales of physical products. For informational purposes, the gross sales for each item sold are made available to all members of the team responsible for the product. Moreover, the compensation is preferably cross-tabulated in text and graphics showing correlation to gross sales and other data.

FIG. 10 illustrates routines performed in the member compensation stage 414 of the invention. The goal of this stage is to compensate members responsible for the creation of a product with a percentage of sales of that product. Team members responsible for a product receive a percentage of the company's sales of the product. In one embodiment, the development team receives a large portion (*e.g.*, 75%) of the administrator company's revenue for each product sold and each team member receives a percentage of the team's share. Each team member's percentage of the team's revenue is, for example, the same as that member's percentage of shares earned of the total shares for the project. In general, team members are paid according to the following formula:  $(\text{monthly sales revenue}) \times (\text{share } \%) \times (\text{team revenue } \%)$ . Members preferably accumulate an account balance based on the monthly sales of the products on which they have earned shares. In one distribution option, the administrator provides branding for a shareware product and distributes it as a download from the administrator site or other distribution

centers/websites. Under this option, the team receives 90%, for example, of the revenues. In another distribution option, the administrator not only provides branding and distribution for a certified product but also tests the product, sets up its installation, reviews the documentation, and provides limited post-release customer support. Under this option, the team receives 75%, for example, of the revenues.

The following are examples illustrating member compensation:

1) A project manager who earns 2,000 shares of a 10,000-share certified product receives 20% of the team's total 75% compensation. In a given month, if 100 copies of a \$30 software product are sold, the member receives: (monthly sales revenue)  $\times$  (share %)  $\times$  (team revenue %) =  $\$3,000 \times 20\% \times 75\% = \$450$ .

2) A team member who does one task that is worth 300 shares of a 10,000-share shareware product receives 3% of the team's total 90% share of revenues. If the product sells 250 copies at \$15 each in one month, the member receives: (monthly sales revenue)  $\times$  (share %)  $\times$  (team revenue %) =  $\$3,750 \times 3\% \times 90\% = \$101.25$ .

3) The project manager in example 1) may not work on any projects for a few months but still reaps the rewards of his or her work. If the project manager does not request a payout for three months, in which the \$30 product sells 100, 40, and 70 copies, respectively, in each month of the three-month period. The manager receives: (accumulated monthly sales revenue)  $\times$  (share %)  $\times$  (team revenue %) =  $(\$3,000 + \$1,200 + \$2,100) \times 20\% \times 75\% = \$945.00$ .

4) The manager in example 3) also worked as a team member in the project of example 2), earning 300 shares. The second product sold 250, 130, and 60 copies, respectively, in the previous three months. The manager (as a team member) receives: (accumulated monthly sales revenue)  $\times$  (share %)  $\times$  (team revenue %) =  $(\$3,750 + \$1,950 + \$900) \times 3\% \times 90\% = \$178.20$ .

In order to increase flexibility and lower costs of transmitting funds to members, the administrator preferably accumulates payouts. The members can review their accounts at any time and request payouts, thus deciding generally when they want to be paid. In addition, the system of the present invention provides a complete history of the various

member accounts, including drill-down features that allow members to review all data relating to projects that they have worked on and their life-to-date payment histories. In a preferred embodiment, the administrator performs payouts on a regular (*e.g.*, monthly) schedule. If distributing payments throughout the month is desirable, the timing of the

5 monthly payments can be based on the anniversary of the particular member's sign-up. It is to be understood that payment functions can be accomplished automatic via electronic transfers of funds to member bank accounts. In any event, the administrator preferably withholds payments that are less than a threshold amount (*e.g.*, ten dollars).

FIG. 10 illustrates a method for compensating members according to an alternative

10 embodiment of the invention. Beginning at step 1002, members responsible for creation of a product are preferably compensated with a ranking that demonstrates their ability to create valuable products. The administrator assigns a number of points to each member at step 1004 based on his or her participation and the success of the product. Each team member receives one point at step 1006 when the member's share of sales is equivalent to

15 10 sales of the product. Step 1008 defines a formula for calculating the points given member. At step 1008:  $(\# \text{ points for a product}) = (\# \text{ of sales} \div 10 \text{ sales per point}) \times (\# \text{ shares earned in product} \div \text{total shares in product})$ .

Step 1010 involves assigning points to each team member based on the monetary compensation that the member received for the product. For example, each team member

20 receives one point for every \$100 in compensation received for a product. Proceeding to step 1012, the success rating is determined by adding unit sale points to compensation points but fractional points are discarded at step 1014.

As an additional incentive, the administrator posts real-time rankings of top point-getters (cumulative, monthly, etc.) on its site with corresponding rewards and perks

25 for success. By rewarding successful members and providing ranking recognition, the administrator can develop productive competition and reinforce its objectives.

It is contemplated that the administrator may encounter certain issues relating to state and federal tax laws and desire to minimize its exposure to taxes related to the payment of compensation to members. According to the invention, system 100 preferably

executes routines for handling the collection of tax-related member information. First, only members that have communicated all of the required information will be paid. This information includes, for example, social security number, U.S. mailing address, and U.S. bank account. For relatively large payments (*e.g.*, over \$1,000), system 100 preferably  
5 submits the member's social security number for a validity check automatically over the Internet. System 100 also generates a report flagging all invalid and/or duplicate social security numbers, along with an e-mail to the particular member requesting that he or she update the necessary fields prior to any additional payments being made. A representation within the sign-up screen (and a later reaffirmation prior to the member receiving his or  
10 her first payment) verifies the accuracy of the member's profile and acknowledges that any employment or income taxes related to the payment of money to a member are the responsibility of the member. This statement is also used to advise the member to consult with a tax advisor.

In one preferred embodiment of the invention, the collaborative development  
15 system 100 also performs member initiation and account management stages 416, 418. At initiation stage 416, the administrator collects enough information on each member for compensation and verification needs. The administrator provides members with information about their account and ratings at account management stage 418. A members services stage 420 is provided for resolving disputes between members and the like.

20 In the present illustration, the general-purpose computers of system 100 are controlled by a WINDOWS operating system, such as WINDOWS 95, WINDOWS 98, or WINDOWS 2000. It is contemplated, however, that the present system would work equally well using MACINTOSH computers or even another operating system such as a LINUX, WINDOWS CE, UNIX or a JAVA based operating system, to name a few.

25 Using the client, *i.e.*, computer 304, to operably connect to server 204 -- in a well-known manner dependent upon the technology of computer network -- users will access various user interfaces, which may take the general form depicted in FIGS. 11-20. These figures suggest the use of Java applets in a WINDOWS environment. Of course, while the present disclosure is being made in a Java/WINDOWS type environment, use of this

environment is not required as part of the present invention. Other programming languages and user-interface approaches may also be used to facilitate data entry and execute the various computer programs that make up the present invention.

FIG. 11 is an exemplary screen display of a member registration interface. In one embodiment of the invention, the prospective participant receives a log-in ID via e-mail after completing a membership application. The log-in ID is then used when the participant accepts the terms of a membership agreement.

FIG. 12 is an exemplary screen display of a member home page. In this example, each member has his or her own home page for obtaining project news, account information, current member statistics and the like. In one example, the home page summarizes news from the computer, programming and technology worlds to encourage members to visit the home page to learn of new opportunities. The home page may also include a summary of the members site statistics, including information regarding compensation due in future periods.

FIG. 13 is an exemplary screen display of an interface for assisting the member in completing and submitting his or her résumé. According to a preferred embodiment of the invention, the résumé provides a key mechanism for members to connecting with each other and for members to become active participants in the community. In one approach, the member may elect to hide his or her résumé from the public. This option, if available, may be implemented at any time by the member.

FIG. 14 is an exemplary screen display of a discussion area interface. System 100 preferably provides a community environment to encourage members to discuss and propose ideas for projects. It is contemplated that project teams will have their own discussion groups for private postings.

FIG. 15 is an exemplary screen display of a project search interface. The project search interface preferably assists members in finding suitable projects. For example, the project search page enables the members to search for projects by type, project manager, or even those projects that are designated as "open-source."

FIG. 16 is an exemplary screen display of an interface for project job postings to facilitate members in identifying desirable projects and joining them. In this example, a member can search for projects that are currently seeking team members and view individual job and project descriptions, e-mailing the respective project managers.

5           FIG. 17 is an exemplary screen display of an interface for initiating a project. Using the project initiation interface, a member can, for example, specify the type of project (*e.g.*, new software, an upgrade, a manual), and the public and private descriptions of the project. In this example, the project initiation interface also permits the member to initiate a private project.

10           FIG. 18 is an exemplary screen display of a résumé search interface. Preferably, system 100 permits searching for a project manager and team members. For example, if a particular member initiates a project, he or she has the option of being the project manager. The initiating member also has the option of searching member résumés for a project manager based on skill levels and ratings. Once a project manager is selected, the search  
15 interface permits the project manager to search for team members. As described above, the project manager is eligible for bonus points, or shares, by selecting members who have yet to be part of a project. Using this search interface, the project manager can view résumés and send e-mail invitations to the prospective team members. It would also be possible for authorized users to utilize the résumés and evaluations on the site in recruiting  
20 computer professionals. In this way, the recruiters would receive some third party feedback on prospective candidates that may be useful in recommending or tailoring a search.

FIG. 19 is an exemplary screen display of an interface for the project manager to assign and manage tasks. In this example of a project tasks screen, the project manager  
25 can obtain details on which member is performing which task, the progress of the task, and the share value of the task. System 100 preferably provides such a screen display in its default form as a template for the project manager to assign shares and tasks, such as design, coding, testing, and documentation, to potential team members.

FIG. 20 is an exemplary screen display of an interface for the user to rate the project manager and other team members based on their performance. Typically, the peer review occurs before the project is completed. If the member is also the project manager, he or she will rate all members of the team.

5           Following the review process, the project can generally be considered completed. In a preferred embodiment, the team receives the majority of revenues generated by the sale/distribution of the product, according to each member's involvement (represented by shares). As described above, the member home page preferably provides account balance information and facilitates the member becoming involved in another project.

10           The software, which comprises an ordered listing of executable instructions for implementing logical functions, may selectively be embodied in any computer-readable medium for use by or in connection with an instruction execution system, apparatus, or device, such as a computer-based system, processor-containing system, or other system that may selectively retrieve the instructions from the instruction execution system,  
15           apparatus, or device and execute the instructions. In the context of this document, a "computer-readable medium" is any means that may contain, store, communicate, propagate, or transport the program for use by or in connection with the instruction execution system, apparatus, or device. The computer readable medium may selectively be, for example but not limited to, an electronic, magnetic, optical, electromagnetic,  
20           infrared, or semiconductor system, apparatus, device, or propagation medium. More specific examples (a non-exhaustive list) of the computer-readable medium would include the following: an electrical connection (electronic) having one or more wires (such as the Internet), a portable computer diskette (magnetic), a RAM (electronic), a read-only memory (ROM) (electronic), an erasable programmable read-only memory (EPROM or  
25           Flash memory) (electronic), an optical fiber (optical), and a portable compact disc read-only memory (CDROM) (optical). Note that the computer-readable medium may even be paper or another suitable medium upon which the program is printed, as the program can be electronically captured, via for instance optical scanning of the paper or other medium,

then compiled, interpreted or otherwise processed in a suitable manner if necessary, and then stored in a computer memory.

When introducing elements of the present invention or the preferred embodiment(s) thereof, the articles "a," "an," "the," and "said" are intended to mean that  
5 there are one or more of the elements. The terms "comprising," "including," and "having" are intended to be inclusive and mean that there may be additional elements other than the listed elements.

In view of the above, it will be seen that the several objects of the invention are achieved and other advantageous results attained.

10 As various changes could be made in the above constructions and methods without departing from the scope of the invention, it is intended that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.



## CLAIMS

## WHAT IS CLAIMED IS:

1. A computer information network system for developing a product in an electronic format, said system comprising:
  - a central controller including a server, said server connecting the central controller to a computer network and supporting a site on the network, said central controller further
  - 5 including a data storage device having at least one database storing the product in an electronic format, said product database being accessible at the site on the network by one or more selected users;
  - one or more local computers connected to the central controller, said local computers executing an administrator interface for communicating with the central
  - 10 controller to manage administrative functions of the system;
  - one or more remote computers situated remotely from the local computer and connected to the network, said remote computers each executing a developer interface for communicating with the central controller via the network to permit the users to access the site supported by the central controller, said developer interface further establishing data
  - 15 transfer links between the remote computers and the central controller for the users to modify the product thereby facilitating collaboration between the users to develop the product.
2. The system of claim 1 wherein the product is defined by a project having a plurality of tasks to be completed by the users, each of said tasks being assigned a predetermined share value and said project having a predetermined total share value.
3. The system of claim 2 wherein each user receives an amount of shares upon completion of the project based on the assigned share value of each task completed by the

respective user, and wherein the data storage device includes a database storing information relating to the shares received by the users.

4. The system of claim 3 wherein the database storing information relating to the shares further stores information relating to compensation for each user for revenues derived from sales of the product as a function of the amount of shares received by the user upon completion of the project.

5. The system of claim 2 wherein the data storage device includes a database storing project templates, said templates defining one or more parent tasks in the project.

6. The system of claim 5 wherein the parent tasks are subdivided into child tasks, said child tasks having cumulative share values that equal the share values of the parent tasks from which the child tasks are subdivided.

7. The system of claim 5 wherein one of the users is selected as a project manager and wherein the project templates define an amount of shares to be received by the project manager upon completion of the project.

8. The system of claim 2 wherein the administrator interface includes a routine for tracking changes in allocating share values to the tasks and maintaining historical information relating thereto.

9. The system of claim 1 wherein the administrator interface includes a source control routine for tracking modifications to the product .

10. The system of claim 1 wherein each user receives a rating upon completion of the project, and wherein the data storage device includes a database storing information relating to the ratings received by the users.

11. The system of claim 10 wherein the administrator interface includes a routine for determining the rating for each user as a function of peer evaluations by the users on the project.

12. The system of claim 10 wherein the administrator interface includes a routine for determining the rating for each user as a function of one or more of the following: peer evaluations from the users on the project; experience on one or more prior projects; sales of product developed by the one or more prior projects; and customer satisfaction with  
5 product developed by the one or more prior projects.

13. A method of developing a product, said method comprising the steps of:  
providing a site on a computer network accessible by a plurality of registered  
users;  
defining a project having a plurality of tasks to be completed for developing the  
5 product;  
assembling a team of one or more of the users;  
assigning a predetermined share value to each of the tasks;  
assigning one or more of the tasks to one or more of the users on the team;  
awarding an amount of shares to one or more users on the team upon completion of  
10 the project based on the assigned share value of each task completed by the respective  
user; and  
compensating the users on the team for revenues derived from sales of the product  
as a function of the amount of shares awarded the users upon completion of the project.

14. The method of claim 13 further comprising the step of storing information relating to the shares awarded the users in a database accessible by the users at the site on the network.

15. The method of claim 13 further comprising the steps of defining one or more parent tasks in the project using a template.

16. The method of claim 15 further comprising the step of subdividing the parent tasks into child tasks, said child tasks having cumulative share values that equal the share values of the parent tasks from which the child tasks are subdivided.

17. The method of claim 15 wherein the step of assembling the team of users includes selecting one of the users as a project manager and wherein the template defines an amount of shares to be received by the project manager upon completion of the project.

18. The method of claim 13 further comprising the steps of tracking changes in allocating share values to the tasks and maintaining historical information relating thereto.

19. The method of claim 13 further comprising the step of tracking modifications to the product using a source control routine.

20. The method of claim 13 further comprising the step of rating each user on the team as a function of peer evaluations by the users on the team.

21. The method of claim 13 further comprising the step of storing the product in an electronic format in a database, said database being accessible at the site on the network by the users on the team for storing respective portions of the product associated with the assigned tasks.

22. A computer information network system for developing a product in an electronic format, said system comprising:

a central controller including a server, said server connecting the central controller to a computer network, said central controller further including a data storage device

- 5 having at least one database storing the product in an electronic format, said product database being accessible on the network by one or more selected users, said product being defined by a project having a plurality of tasks to be completed by the users, each of said tasks being assigned a predetermined share value and said project having a predetermined total share value; and
- 10 one or more remote computers situated remotely from the local computer and connected to the network, said remote computers each executing a developer interface for communicating with the central controller via the network to permit the users to access the product database.

23. A computer data signal embodied in a carrier wave for facilitating the compensation of one or more participants in a collaborative development effort, the computer data signal comprising:

- means for organizing a plurality of tasks leading to the completion of the
- 5 collaborative development effort;
- means for allocating a limited number of shares to each of the tasks;
- means for assigning the one or more participants to work on the tasks; and
- means for distributing to each respective participant of the one or more participants upon completion of the collaborative development effort the shares allocated to each of the
- 10 tasks assigned to the respective participant.

24. The computer data signal embodied in a carrier wave according to claim 23 wherein the allocating means includes predetermined share assignment for each of the tasks.

25. The computer data signal embodied in a carrier wave according to claim 23 wherein the allocating means includes means for adjusting the limited number of shares allocated to a selected one or more of the tasks.

26. The computer data signal embodied in a carrier wave according to claim 25 wherein the adjusting means includes means for evaluating a technical contribution made by the respective participant on the selected task.

27. The computer data signal embodied in a carrier wave according to claim 23 wherein the assigning means includes a database of potential participants.

28. The computer data signal embodied in a carrier wave according to claim 27 wherein the assigning means includes means for searching the database of potential participants.

29. The computer data signal embodied in a carrier wave according to claim 23 wherein the assigning means includes:

means for posting the tasks for review by potential participants; and

means for communicating between a project manager of the collaborative

5 development effort and the potential participants.

30. A method of facilitating the compensation of one or more participants in a collaborative development effort, said method comprising the steps of:

organizing a plurality of tasks leading to the completion of the collaborative development effort;

5 allocating a limited number of shares to each of the tasks;

assigning the one or more participants to work on the tasks; and

distributing to each respective participant of the one or more participants upon completion of the collaborative development effort the shares allocated to each of the tasks assigned to the respective participant.

31. The method of claim 30 wherein the allocating step includes assigning predetermined a share value for each of the tasks.

32. The method of claim 30 wherein the allocating step includes adjusting the limited number of shares allocated to a selected one or more of the tasks.

33. The method of claim 32 wherein the adjusting step includes evaluating a technical contribution made by the respective participant on the selected task.

34. The method of claim 30 wherein the assigning step includes searching a database of potential participants.

35. The method of claim 30 wherein the assigning step includes the steps of:  
posting the tasks for review by potential participants; and  
communicating between a project manager of the collaborative development effort and the potential participants.

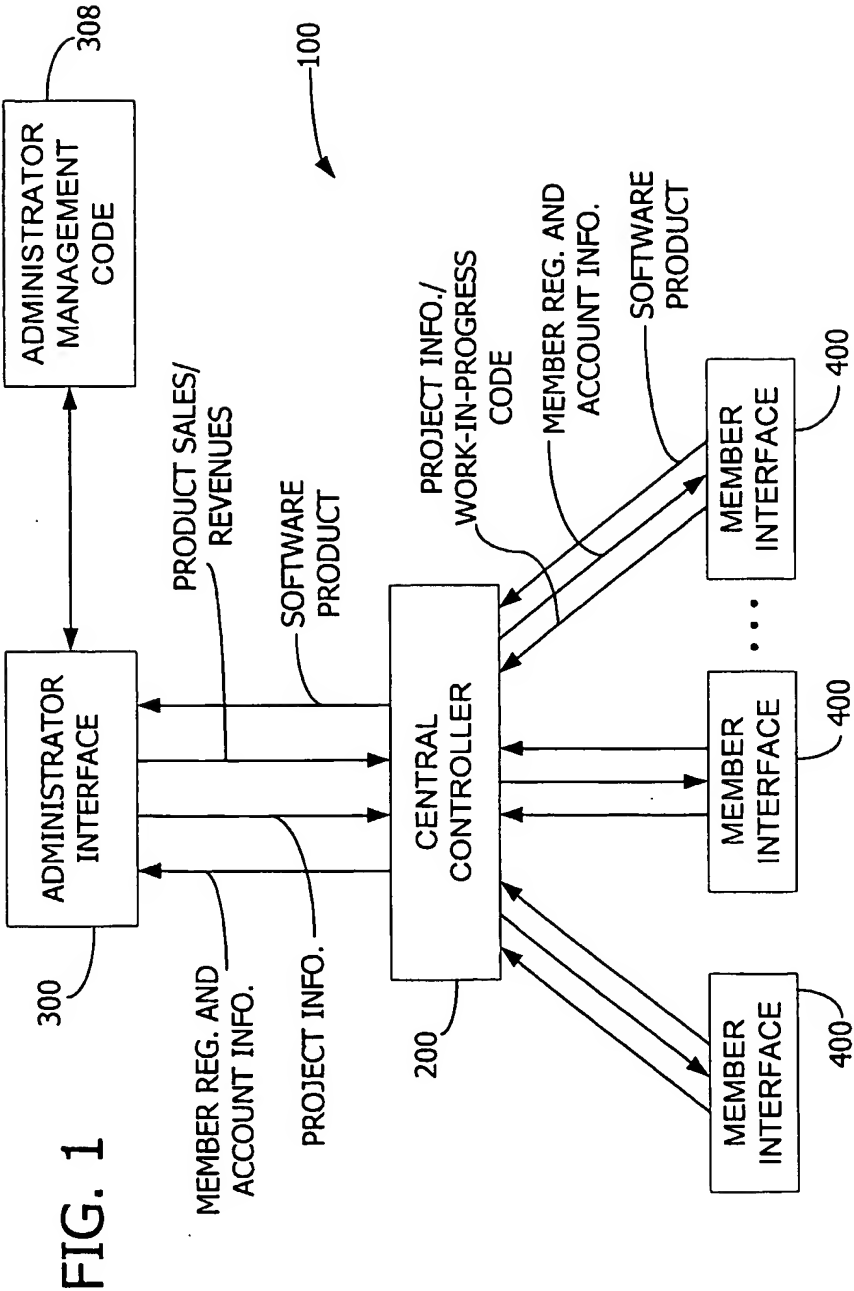
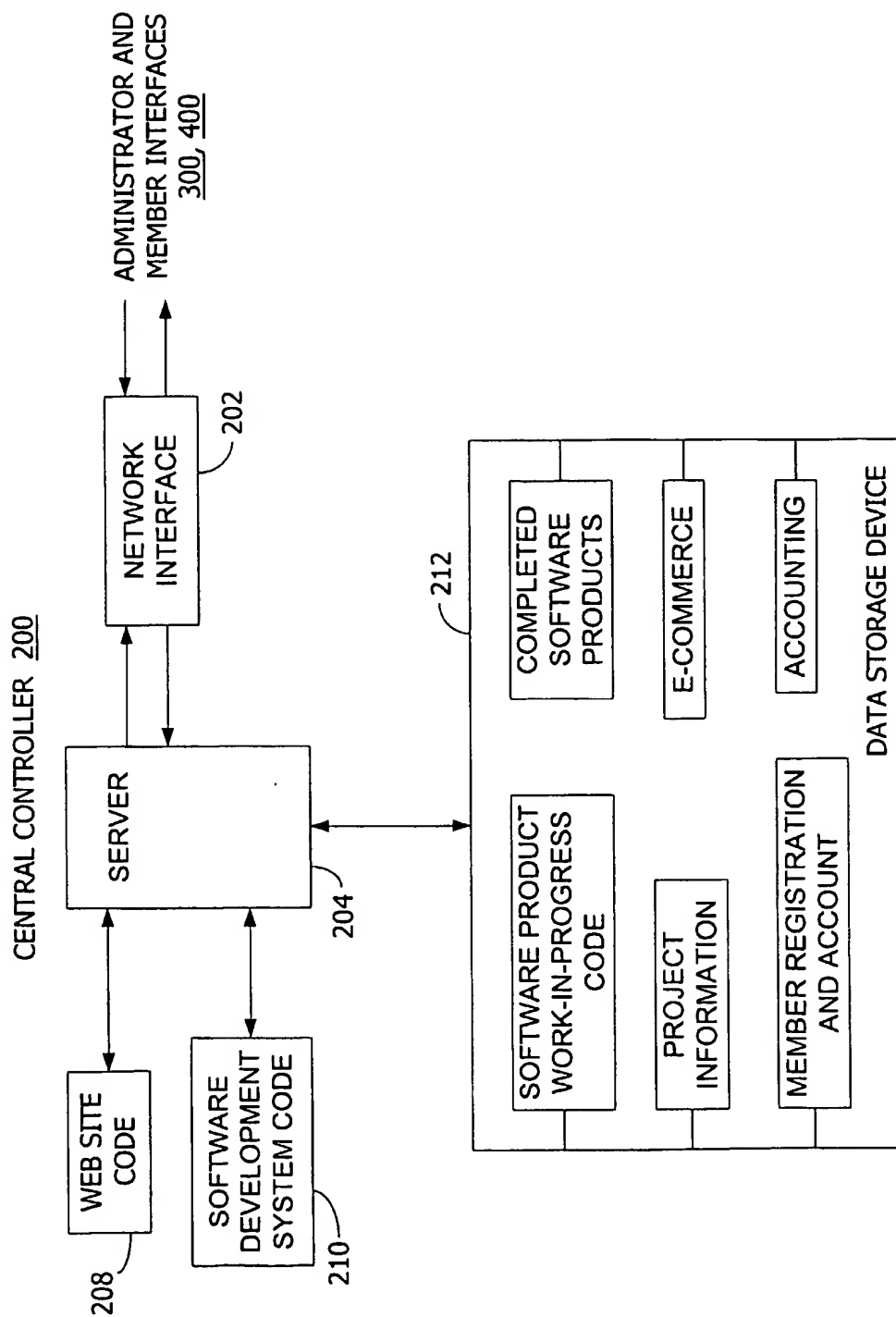




FIG. 2



3/20

FIG. 3A

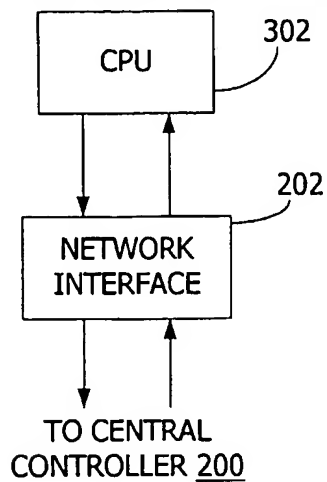
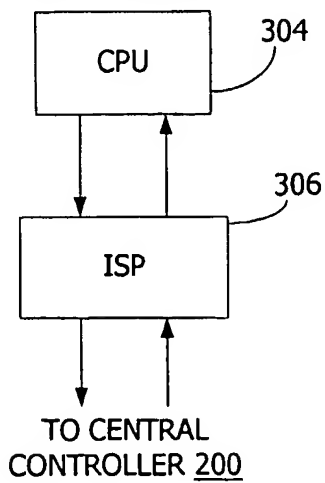
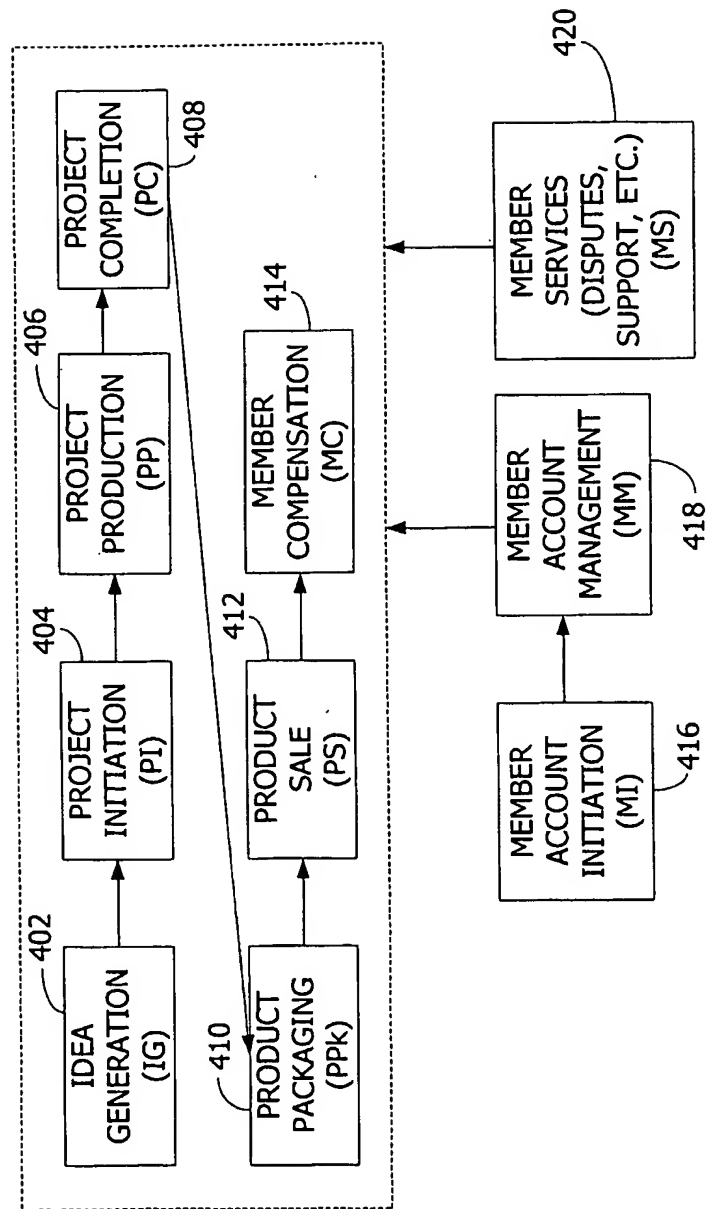
ADMINISTRATOR INTERFACE 300

FIG. 3B

MEMBER INTERFACE 400

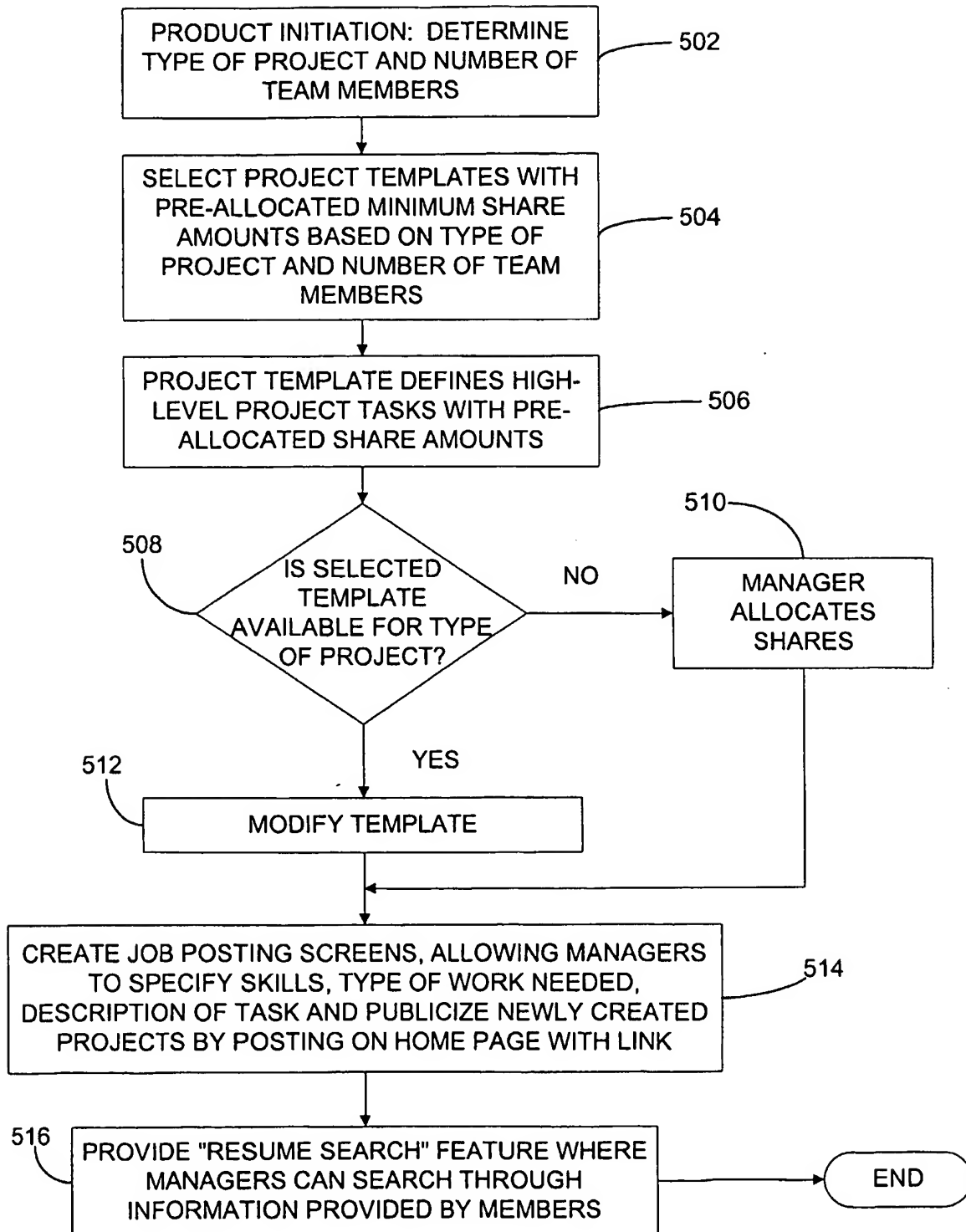
4/20

FIG. 4



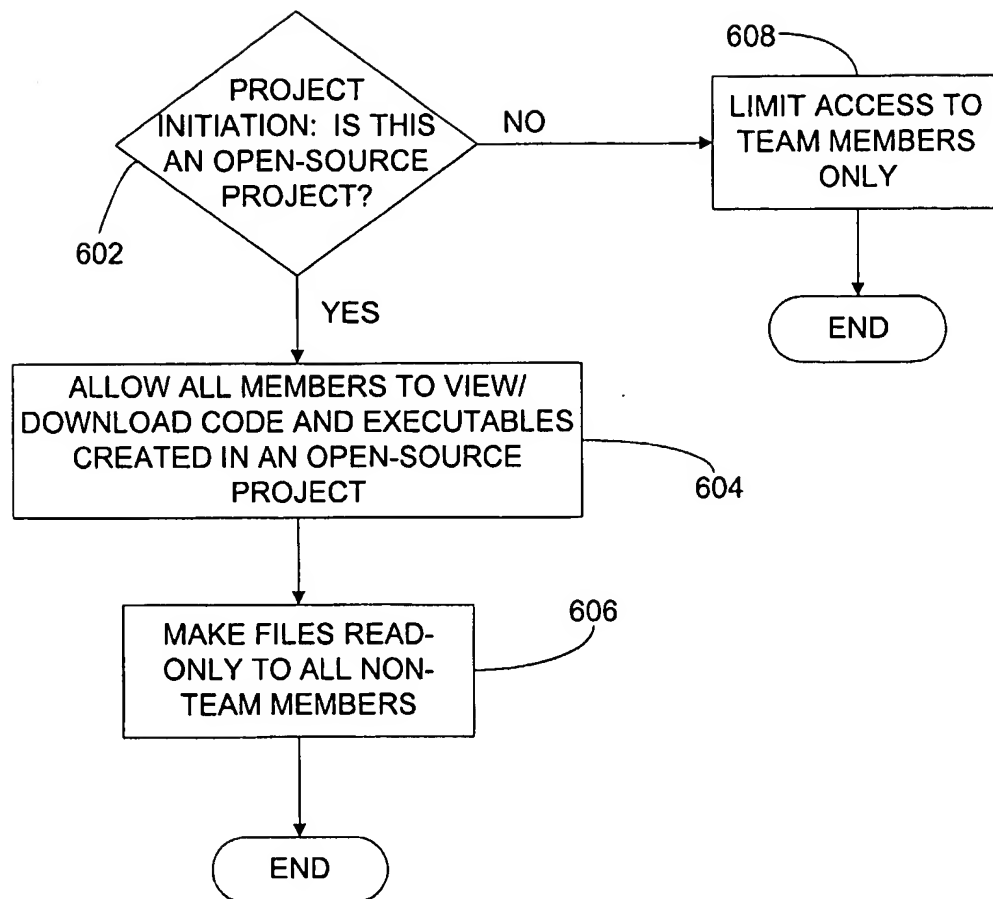
5/20

FIG. 5



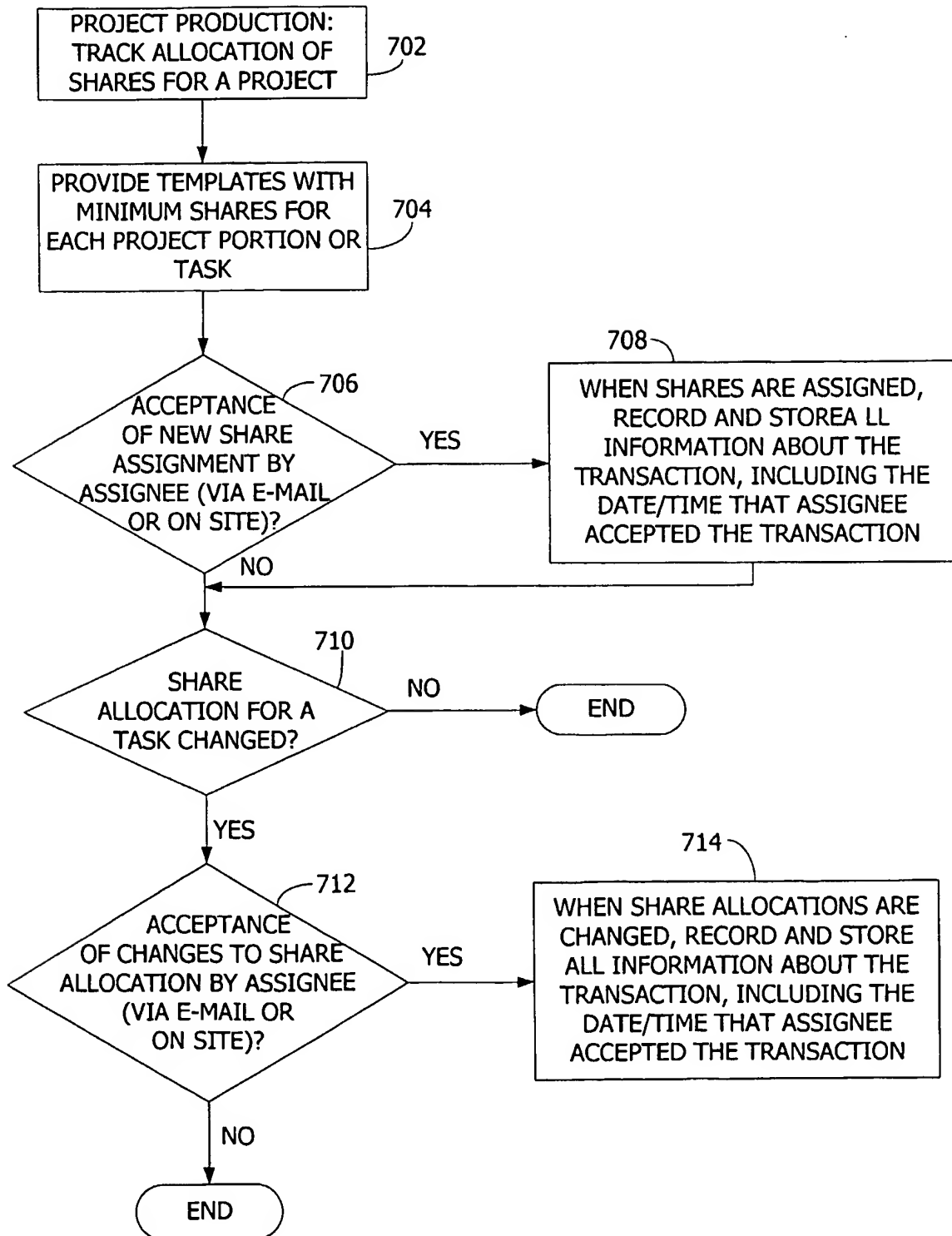
6/20

FIG. 6



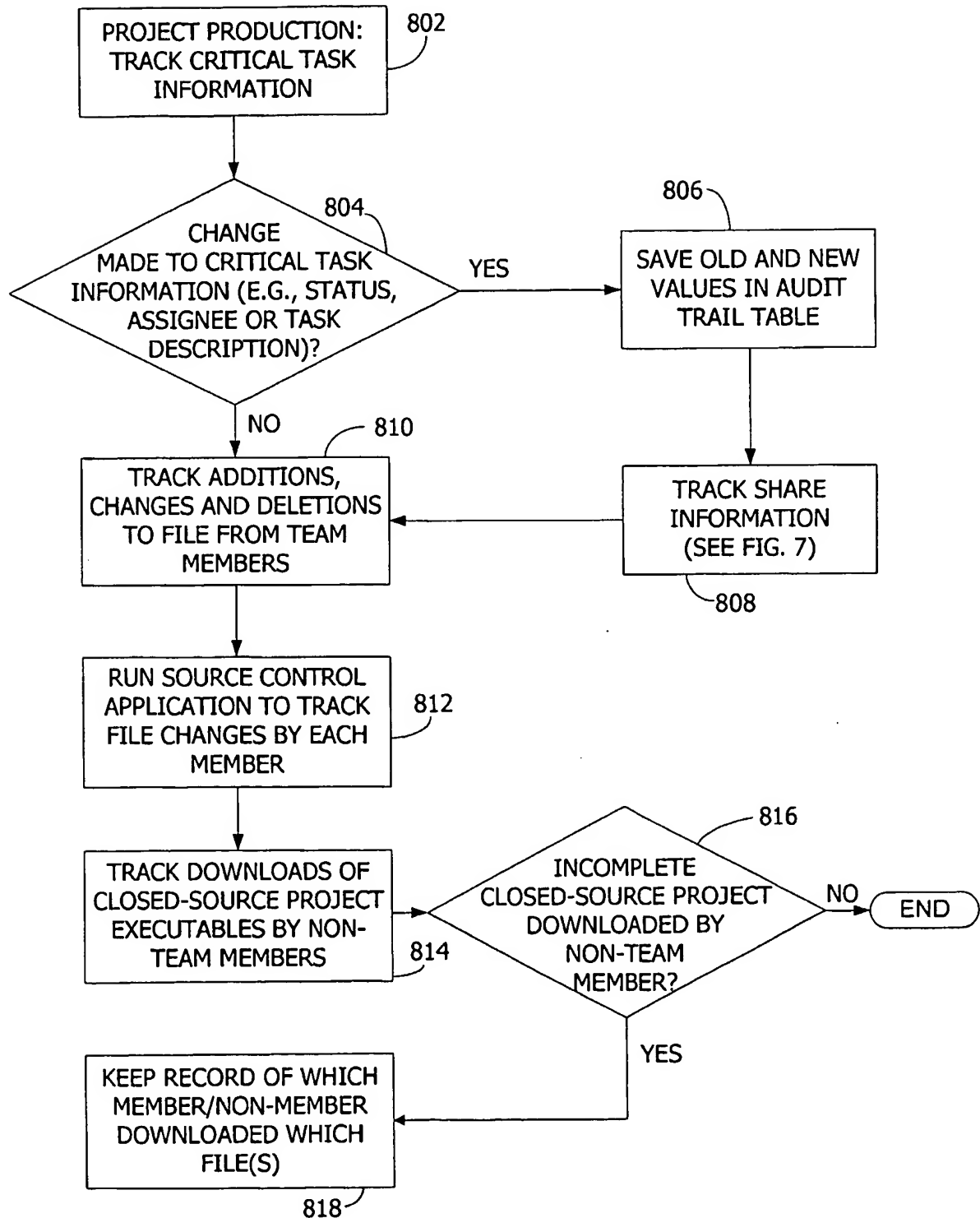
7/20

FIG. 7



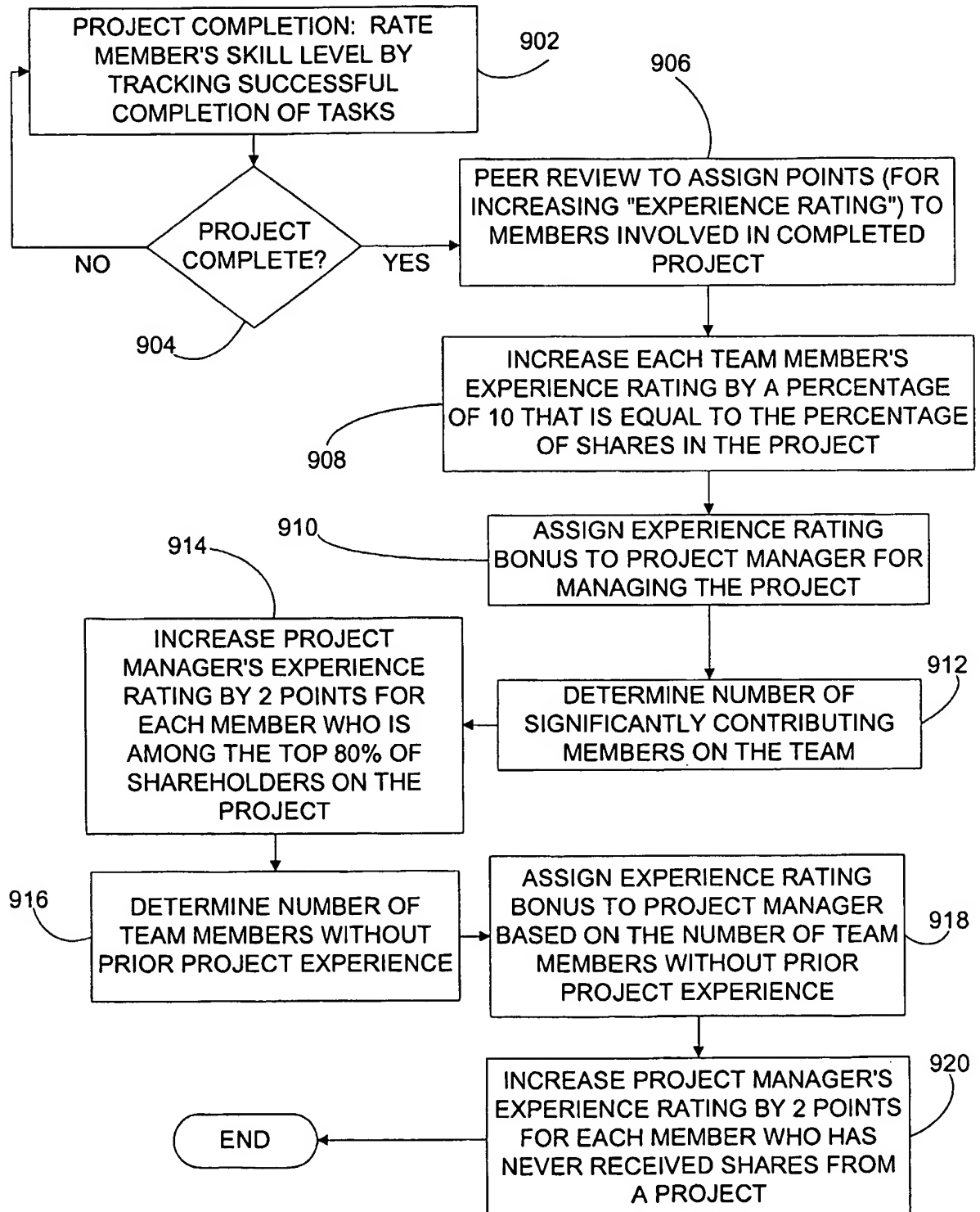
8/20

FIG. 8



9/20

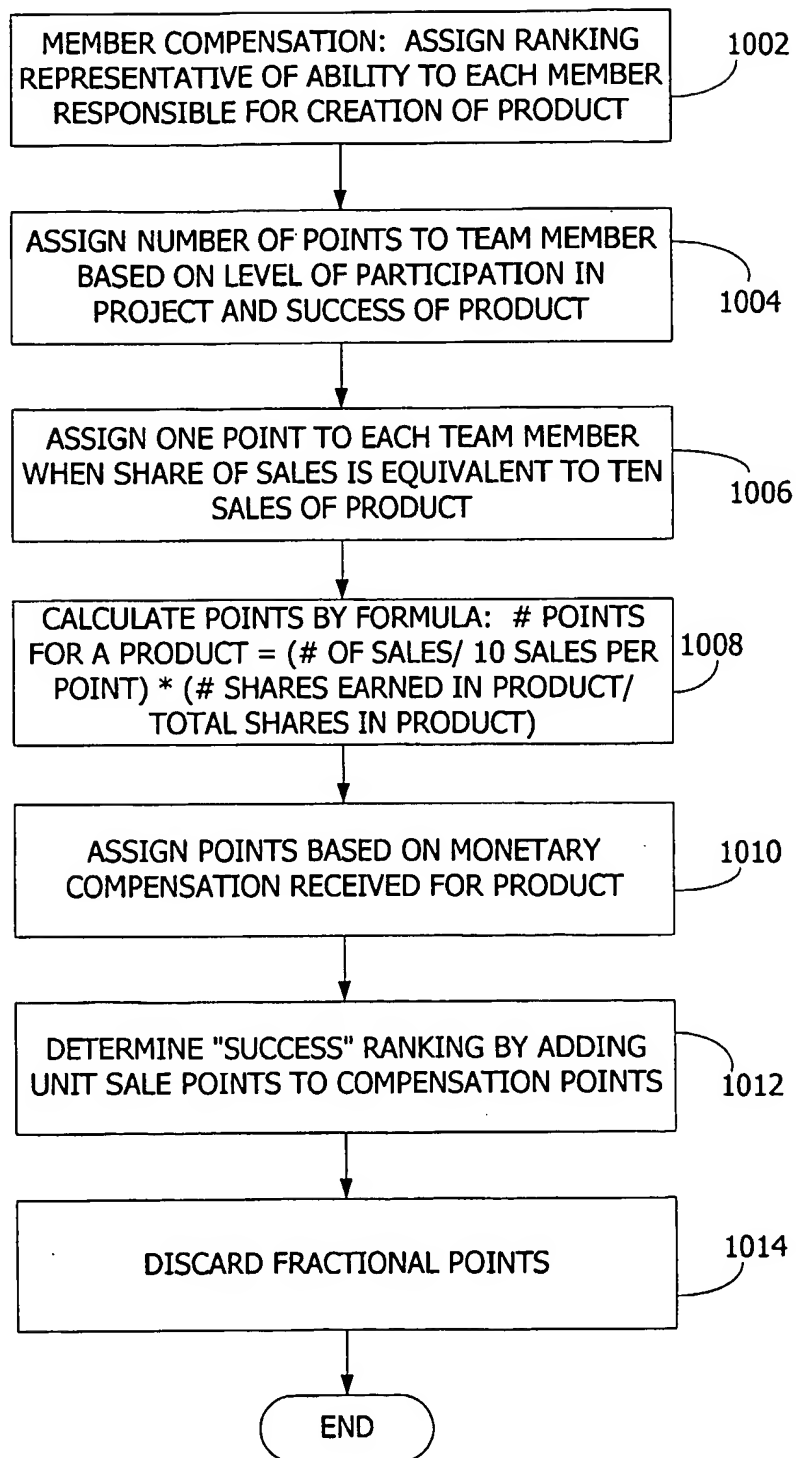
FIG. 9





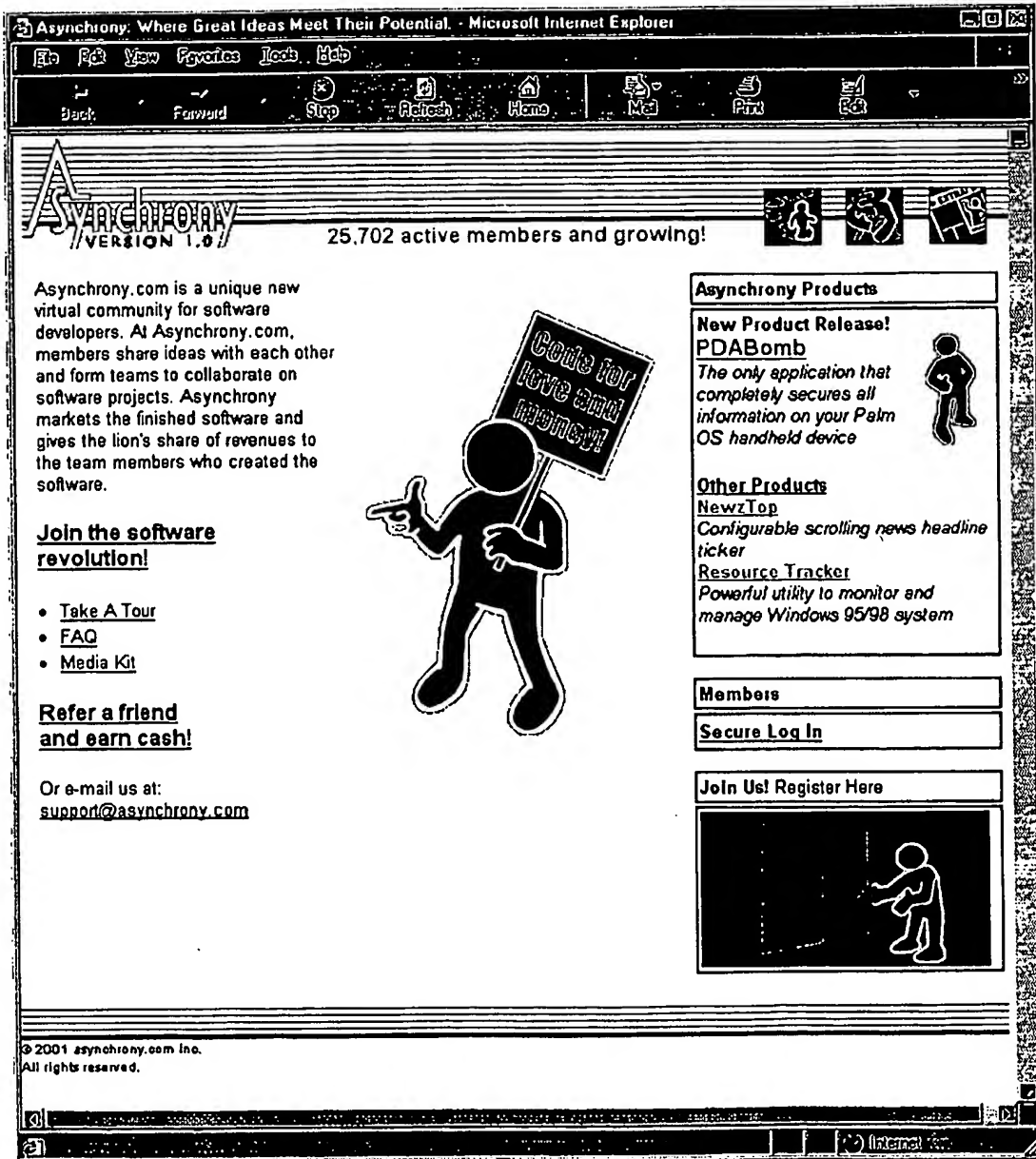
10/20

FIG. 10



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FIG. 11



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FIG. 12

**Asynchrony Member Home - Microsoft Internet Explorer**

File Edit View Favorites Tools Help

Back Forward Stop Refresh Home Mail Print Edit Open

**Asynchrony**  
VERSION 1.0

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Zarniwoop Member Home

**Currently Active Projects for Zarniwoop**

[Garden Weasel](#) (Manager)  
[Yahoo B-ball Palm an](#)  
[Scha-wingl](#) (Manager)  
[Asynchrony](#) (Manager)  
[Lenders One](#)

**Beta Software Downloaded:**  
[PDABomb v1.01](#)  
[Advanced App Saver](#)  
[NewzTop v1.1](#)  
[WinTimer](#)  
[Big Win Poker](#)

**Latest Project News:**

**Projects Forming Teams:**  
*(Ranked by Love/Money Score)*

- [VMGISOft 3D Game](#) (80)
- [Defeat](#) (79)
- [Web Magazine Builder](#) (72)
- [Kung-Fu Dev Kit](#) (71)
- [DFBN](#) (71)

[view entire list...](#)

**Top Rated Projects:**  
*(Ranked by Love/Money Score)*

- [PDABomb](#) (89)
- [PDABomb v1.01](#) (82)
- [VMGISOft 3D Game](#) (80)
- [Defeat](#) (79)
- [KdMail](#) (76)

**Site News:**

- **Latest site enhancements:** We have now added the long-awaited Project Rating feature that allows our members to express their opinions about all of our projects. Start making a difference today by rating projects on the project detail screen! [More...](#)
- **KEEP INFORMED AND WIN!** Add your interests to your [resume](#), and let our Personal Project Finder locate the new projects you'd like to be part of! We'll be rewarding one notification recipient per week with an Asynchrony T-shirt, and one recipient per month with a \$50 credit to their Asynchrony account! All you have to do to enter is receive the e-mail. Sign up today! **Congratulations to our December winner, "purnacr"!**
- Know someone who is interested in working in the New York/New Jersey area? If so, [click here](#) to view exciting opportunities with a company who develops and deploys advanced IP Content Rating/Settlement and IP Billing Solutions for Content Distributors, ASPs, ISPs, Carriers, Wireless Internet Providers and Enterprise customers.
- Asynchrony now has an IRC server for real-time chatting with other Asynchrony members (as well as our support team). Connect your IRC client to [irc.asynchrony.com](#), port 6667 if you want to join in!
- **EARN SHARES NOW!** Products are currently available to download for beta testing. Use the "Beta Downloads" button on the toolbar, or click on the project name under the "Beta Testers Needed" section in the "Latest Project News" area on this page. Beta testers who find bugs can earn shares in the project! For more information, check out our [Beta Testing FAQ](#).
- **Sign up for our Beta Project Notification Mailing List!** Each time a new project is added to the beta testing area or a new version of an existing beta test project is released, you will receive an e-mail message. Simply click [subscribe](#), which will automatically send an e-mail request to add you to the list.

**Current Site Statistics:**

Total Members: 25702  
Total Projects: 1119

**TechWeb News**

- [Will Sun Take The Linux](#)

Internet

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FIG. 13

Asynchrony Member Resume - Microsoft Internet Explorer

Go Edit View Favorites Tools Help

Back Forward Stop Refresh Home Mail Print Edit Delete

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**Member Resume**

### What do you know?

Project managers search member resumes to find qualified people to participate in their projects. It is important to accurately list your skills and experience. Don't be too modest and miss out on projects you're really qualified for. On the other hand, don't exaggerate and get in over your head (with a negative impact on your Asynchrony rating).

Skills are definite, measurable abilities that you have obtained. They could be programming languages (e.g., Java, C++, Visual Basic), operating systems (e.g., Linux, Windows, Mac OS) or artistic abilities (e.g., graphic design, GUI layout, writing). You should also feel free to list "softer" skills, such as management or system design. Managers search resumes based on skill descriptions, so try to use standard terminology. You can write the same item different ways if you think it would improve your chances of matching a resume search.

Interests can help others find out what you like and don't like. They are also useful for our Personal Project Finder, which automatically notifies you about projects whose keywords match the "likes" that you enter. (Be sure to separate each "like" with a comma.) When you have added your interests, select how often you'd like to be notified (select Never if you do not want to be notified). Examples: platforms, hobbies, programming languages.

#### Skills

Skill	Expertise	Last Used In	
Java	Heavy	2000	<input type="checkbox"/>
C++	Average	1996	<input type="checkbox"/>
HTML	Extremely Heavy	2000	<input type="checkbox"/>
JavaScript	Average	2000	<input type="checkbox"/>
Servlets	Heavy	2000	<input type="checkbox"/>
Perl	Light	1998	<input type="checkbox"/>
Software Architecture	Heavy	2000	<input type="checkbox"/>
Visual Basic	Heavy	1999	<input type="checkbox"/>
ASP	Heavy	1999	<input type="checkbox"/>
MTS	Average	1999	<input type="checkbox"/>

Delete Marked Skills

Skill Expertise Last Used In

☐ ☐ Add Skill

#### Interests

Likes: palm, pda, utility, linux mail

Dislikes: cobol, mac

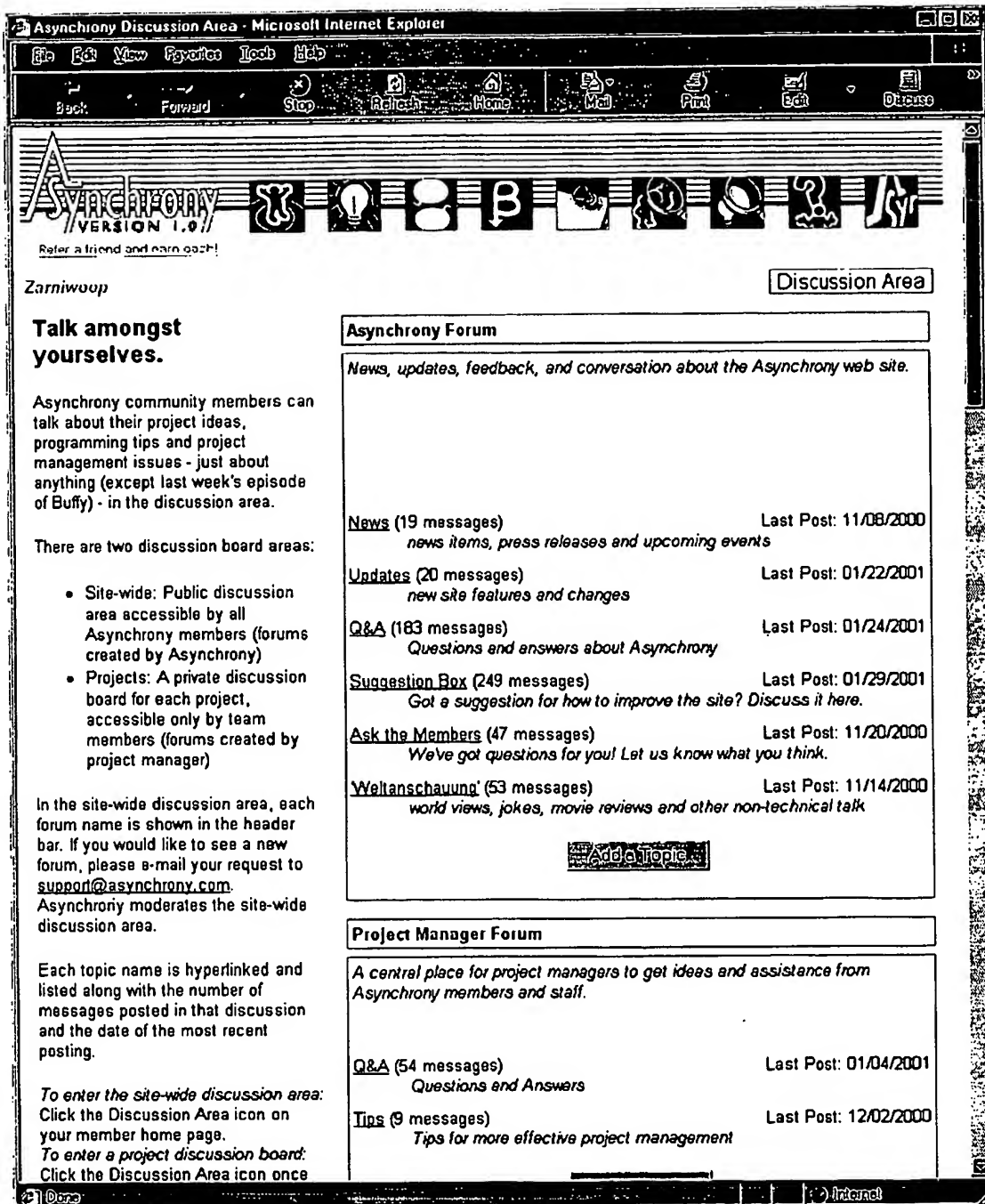
Notify me about new projects that might interest me: Weekly ☒

-- Marked Interests --

Done Interest

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FIG. 14



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FIG. 15

Asynchrony Project Info Search - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Refresh Home Mail Print Edit Delete

**Asynchrony**  
VERSION 1.0

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**Project Info Search**

**Looking for something?**

Browse projects by keyword! Our browse function lets you narrow down projects using keywords. Click [Browse](#) at right.

Check out who's doing what using criteria to search our members' current public projects. You can't use wildcards, but if your search string is a portion of a word, you'll find it.

**Project Name:** Use the full or partial project name.  
**Manager's User ID:** Find out what your favorite managers are up to (full or partial name).  
**Keywords:** Try up to 30 characters (e.g., platform, languages, subject, category or fragrance).  
**Include Interests:** Check this box to limit the search to projects whose keywords match your interests.  
**Project Score :** (0-100) The composite ratings of members who've reviewed the project in areas of marketability, feasibility, profitability, coolness and uniqueness. *Love and Money* shows projects that are both enjoyable and potentially profitable for the team. *Love* emphasizes coolness and uniqueness, and *Money* emphasizes profitability, marketability, and feasibility. For more information, please see [Project Ratings](#).  
**Has jobs posted for:** Narrow search to include only specific job openings.  
**Project Type:** Pick your pleasure.  
**Project Status:** Select by where the team is in the production process.  
 (Remember that some project

**Enter Search Criteria:**

**Browse projects by keyword.**

Project Name:

Manager's User ID:

Keywords:  Project has ALL words. ☒

Include interests in search: ☐ [View/update my interests](#)

NEW! Project Score:  Love and Money ☒ Score >=

Has jobs posted for:  All ☒

Project Type:  All ☒

Project Status:  All ☒

Last Project Area Activity:  All ☒

Project Created:  All ☒

License Type:  Proprietary & Open Source ☒

Number of results per page:  10 ☒

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FIG. 16

Asynchrony Job Detail - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Reload Home Mail Print Edit Delete

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VERSION 1.0

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Zarniwoop

**Job Detail**

**Ask not what the project can do for you, but what you can do for the project.**

So what do you think -- does this one look interesting enough? If it does, click **Apply for Position**. You will then be able to create your own personalized application for the job.

If you need more information, you can send an e-mail to the project manager by clicking his or her name.

The share range indicates a flexible amount that will be assigned to the project task or task category -- you and the project manager will determine this after you are accepted on the team.

Job Information	
<b>Project Name:</b>	VMGSoft 3D Game
<b>Manager:</b>	vmgsoft
<b>Project Type:</b>	Software - New
<b>Project Status:</b>	Forming Team as of 1/25/2001
<b>Project Description:</b>	Exciting game project for Windows 95/98/NT and console systems Needed: Game Developers Lead Programmers * 3D Graphics Programmers * Tools Programmers * Experience with 3D required for all programming positions *Lead Artists, *2D & 3D Artists - Max or SoftImage with Photoshop skills for real-time 3D games *Level Designers E-mail your bio/resume to: vmgsoft attention 3D game project manager Note: This project will begin when all team members are in place. It must be completed within (5) months of team assembly. Heavy and experienced 3D game engine developers only. * Be prepared to show screen shots of actual previous work, or fully describe your coding responsibility.
<b>Project Keywords:</b>	windows 95, 98, NT, xbox, game, gaming, multiplayer, physics, math, complex math, polygons,
<b>Position Needed:</b>	Developer
<b>Job Description:</b>	Forming Team ===== Independent Game Outfits Welcome To Apply! -Lead Programmers, -3D Graphics Programmers -Tools Programmers Experience with 3D required for all programming positions -Lead Artists, 2D & 3D Artists - Max or SoftImage with Photoshop skills for real-time 3D games Producers Level -Designers E-mail your bio/resume or Independent Game Development website to vmgsoft attention: 3D Games Development Note: All invited developers will also be required to complete a standard non-disclosure agreement in addition to the standard Asynchrony.com membership agreement.
<b>Experience Level Desired:</b>	💡💡💡💡 or higher

Done

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FIG. 17

Asynchronous Create a Project - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Reload Home Mail Print Edit Discard

**ASYNC PROJECTORY**  
VERSION 1.0

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[Create a Project](#)

### The longest journey begins with a single form.

In order to create a project, you must fill out this form. Fields that are marked with an asterisk (\*) are mandatory information. (Sorry for the heavy-handed tactic, dude).

Anyway, after you've gone to the trouble of filling out all this information in excruciating detail, you then have the right to press the **Add My Project** button below to create the necessary information and set up your project site. When this process is complete you will be transported as if by magic to your new project site.

Details for the curious, slow or voters in Palm Beach County:

**Public project name:** The name for your project that is viewed by members at large (or small). This can be as clear or as confusing as your desire. Remember, if this is a private project or you simply want to keep things quiet, leave this field blank.

**Short Public Project Description:** Your mission, if you choose to accept it, is to describe your project in 80 characters or less. Haiku is acceptable.

**Long Public Project Description:** Okay, Tolstoy, here's your chance to use a whopping 1000 characters to

#### Project Manager

First of all, you need to decide if you will be the project manager, or if you just want to create the project and find someone else to manage it. For more information on the distinction between these roles, [click here](#).

☒ I will be the Project Manager

#### Public Information

The following information will be public to everyone on the site. If you want a "stealth project" that no one knows about, you can leave all of this information blank. Keep in mind that the more information you reveal, the easier it will be to attract interested people. However, if your idea is especially original and you already have a team in mind, you can make the project secret to keep someone else from copying you.

Public Project Name:  (20 characters)

Short Public Project Description: (80 characters)

Long Public Project Description: (1000 characters)

If you need team members, you can check the box below to denote that your project is accepting applications.

☐ This project is currently accepting applications.

#### Searchable Keywords for Project

Operating System(s): (30 characters)



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FIG. 18

Asynchrony Resume Search - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Refresh Home Mail Print Edit Discuss

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**Resume Search**

**Find that special someone for your project.**

As a project manager, you know how important it is to find the right people for your team. Use this search to target the people with the proper mix of experience, ability and sense of humor.

**Member Name:** Check out the skills of those whom you know by member name.

**Skill Keyword(s):** In up to three fields, enter as many skill keywords as you like, using standard terminology. These keywords can be programming languages, software application names, operating systems or generic skills (keywords are not case-sensitive).

**Keyword Search Type:** Search using all or any words listed in the preceeding field.

**Minimum Expertise:** Search by a member's self-rated expertise level (best used on only one keyword).

**Minimum Ratings:** Search by a minimum score (use integers only).

- **Asynchrony:** (0-100) Their combined and weighted score.
- **Peer:** (0-100) Their rating from fellow members.
- **Experience:** (0-5) Their

**Enter Search Criteria:**

**Member Name:** \_\_\_\_\_

**Skill Keyword(s):** \_\_\_\_\_

**Keyword Search Type:** ☒ Skill has ALL words. ☒ Skill has ALL words. ☒ Skill has ALL words.

**Minimum Expertise:** ☒ Extremely Light ☒ Extremely Light ☒ Extremely Light

**Minimum Ratings:**

**Asynchrony**  **Peer**  **Experience**  **Quality**

☐ Only show members who have never been part of a project team

**Number of Results Per Page:**  ☒

**Search**

Internet

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FIG. 19

Asynchrony Project Tasks - Microsoft Internet Explorer

Go Edit View Favorites Tools Help

Back Forward Stop Refresh Home Mail Print Edit Discuss

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Yahoo B-ball Palm ap (#283) / Zarniwoop

**Project Tasks**

Project Name: Yahoo B-ball Palm ap, Manager: pip72, Total Shares: 10000

Total tasks: 11    Total completed tasks: 2    Total unallocated shares: 2000    Total shares approved: 1000

Task ID	Description	Assigned To	Status	# Shares
1	DESIGN	pip72	In Process	1500 (15.0%)
2	DEVELOPMENT	unassigned	Unassigned	4500 (45.0%)
2.1	Palm development	mwalters	In Process	2000 (20.0%)
2.2	Windows development	InVIVID	In Process	2000 (20.0%)
3	tester 2	unassigned	Unassigned	500 (5.0%)
3.1	tester 1	unassigned	Unassigned	500 (5.0%)
4	DOCUMENTATION	unassigned	Unassigned	500 (5.0%)
5	ADMINISTRATION	pip72	Not Started	1000 (10.0%)
5.1	Project Creation (Auto Generated)	pip72	Approved	200 (2.0%)
5.2	Project Management (Auto Generated)	pip72	Approved	800 (8.0%)
6	BETA TESTING	unassigned	Unassigned	0 (0.0%)

Expand All    Collapse All    ALL    ALL    Refresh

Project Home | Send An E-Mail | Discussion Area | Project Tasks |  
Project Change Requests | Project Team Members | Peer Review | Project Options |

Internet

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FIG. 20

Asynchrony Peer Review - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Refresh Home Mail Print Edit Discuss

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Asynchrony (#293) / Zarniwoop Peer Review

Team Member to Review:  
jumpingmouse ☒  
[Submit Peer Review](#)

**The future of your community rests in your fingers.**

The peer rating system is a crucial part of our community. It is the primary way that people can make good decisions about whom to choose for their projects -- and which project managers to work for. Remember, the composite peer rating makes up 75% of a member's overall Asynchrony Rating.

**Attribute Ratings**  
(Required) Rate the member in each attribute category from 1 (lowest) to 10 (highest). Please be as accurate as possible on each attribute. Don't allow strength or weakness in any particular area to impact your evaluation on other areas. For more information on ratings and these attributes, please see [Ratings](#).

**Comments**  
(Optional) If you have any specific comments that you want the member to see, enter them in the comments section. Your ratings and comments will remain anonymous, so please be honest in your assessment.

**Attribute Ratings:**

Attribute	(Needs improvement)					(Couldn't be better)				
	1	2	3	4	5	6	7	8	9	10
Quality of work	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Willingness to cooperate	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Knowledge	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Helpfulness	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ability to communicate	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Dependability	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Availability	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Initiative	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Positive attitude	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Turnaround time	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Comments**

**Strengths:**

**Areas for Improvement:**

Done Internet

## INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 00/27373

A. CLASSIFICATION OF SUBJECT MATTER  
IPC 7 G06F9/44

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 G06F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, INSPEC, IBM-TDB

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	GORTON I ET AL: "COLLABORATIVE TOOLS AND PROCESSES TO SUPPORT SOFTWARE ENGINEERING SHIFT WORK" BT TECHNOLOGY JOURNAL, GB, BT LABORATORIES, vol. 15, no. 3, 1 July 1997 (1997-07-01), pages 189-198, XP000722028 ISSN: 1358-3948 page 190, right-hand column, line 13 -page 192, right-hand column, line 3	1,22
A		2-21, 23-35
X	EP 0 485 934 A (CIT ALCATEL) 20 May 1992 (1992-05-20) column 2, line 3 - line 30	1,22
A	figures 1,2	2-21, 23-35
	--- -/--	

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

## \* Special categories of cited documents:

- \*A\* document defining the general state of the art which is not considered to be of particular relevance
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- \*L\* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- \*O\* document referring to an oral disclosure, use, exhibition or other means
- \*P\* document published prior to the international filing date but later than the priority date claimed

- \*T\* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- \*X\* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- \*Y\* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- \*&\* document member of the same patent family

Date of the actual completion of the international search

8 February 2001

Date of mailing of the international search report

16/02/2001

Name and mailing address of the ISA

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Fax: (+31-70) 340-3016

Authorized officer

Brandt, J

## INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 00/27373

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	CHANG K H ET AL: "SOFTWARE DEVELOPMENT AND INTEGRATION IN A COMPUTER SUPPORTED COOPERATIVE WORK ENVIRONMENT" SOFTWARE PRACTICE & EXPERIENCE,GB,JOHN WILEY & SONS LTD. CHICHESTER, vol. 28, no. 6, 1 May 1998 (1998-05-01), pages 657-679, XP000749025 ISSN: 0038-0644 the whole document -----	1-35

## INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 00/27373

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 0485934 A	20-05-1992	FR 2669446 A	22-05-1992
		AT 155262 T	15-07-1997
		CA 2055647 A	17-05-1992
		DE 69126761 D	14-08-1997
		DE 69126761 T	23-10-1997
		DK 485934 T	24-11-1997
		ES 2103766 T	01-10-1997
		JP 4299734 A	22-10-1992
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